PETITION NO. 785

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ORIGINAL

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August 18, 2006

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CONNECTICUT
SITING COUNCIL

By Overnight Mail

S. Derek Phelps
Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Bridgeport Fuel Cell Park, LLC.
Petition for Declaratory Ruling No.

Dear Mr. Phelps:

On behalf of Bridgeport Fuel Cell Park, LLC ("Bridgeport" or the "Petitioner"), I have enclosed an original and twenty (20) copies of the Petition for a Request to the Connecticut Siting Council for a Declaratory Ruling of No Significant Environmental Impact with regard to the proposed construction and operation of the Bridgeport Fuel Cell Park Project to be located in Bridgeport, Connecticut. In addition, I have enclosed an additional copy with a stamped self-addressed envelope to be stamped and returned to us for our files.

On behalf of the Petitioner, I stand ready to provide any additional information that the Council may deem necessary. Thank you for your consideration of this matter.

Sincerely,

John A. DeTore, Esq.
Counsel for the Petitioner

Enclosures
JAD/df

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NOTICE OF PETITION
TO THE CONNECTICUT SITING COUNCIL
BY
BRIDGEPORT FUEL CELL PARK, LLC
FOR A RULING THAT NO CERTIFICATE IS REQUIRED FOR THE INSTALLATION AND OPERATION OF A FUEL CELL ELECTRIC GENERATION FACILITY IN BRIDGEPORT, CONNECTICUT

Notice is hereby given that Bridgeport Fuel Cell Park, LLC, of -406 Farmington Avenue, Farmington, Connecticut ("Bridgeport"), will submit, on or about August 18, 2006, a Petition to the Connecticut Siting Council for a Declaratory Ruling ("Petition") 14.4 megawatt ("MW") fuel cell project located at Hancock Street in Bridgeport, Connecticut (the "Project") will not have a substantial adverse environmental effect, and that therefore no Certificate of Environmental Compatibility and Public Need is required.

The Bridgeport Fuel Cell Park will be located on an approximately two acre remediated Brownfield site on Hancock Street in south Bridgeport. The site is zoned for Light Industry and is bordered to the north by Carr's Ice Cream, a large tile warehouse to the east, to the west by the former Lesbia Street (not a thru street; there are barriers on both ends of the street), and to the south by Railroad Avenue The Metro North/Amtrak rail line lies parallel to Railroad Avenue immediately to the south of the project site. Interstate 95 lies 640 meters further to the south. The lot immediately to the east of the project site contains a newly constructed tile warehouse. The lot immediately to the west of the project site is vacant as a large industrial building was recently razed.

The Project will consist of six fuel cell units manufactured by Fuel Cell Energy. Each unit is rated at 2.4 MW and the total 14.4 MW will enter the distribution system via two circuits located adjacent to the site. This area of the United Illuminating system is particularly congested and can support this introduction of power, offsetting an equivalent amount of congestion. Output from the units will be generated at 400 volts and stepped up to 13.8 kilovolts to interconnect with the distribution system. Other equipment on site includes water treatment equipment, main process skid with a heat recovery unit, anode gas oxidizer and main air blowers, a nitrogen tank and vaporizer and the electrical balance of plant including transformers.

The Bridgeport Project is being proposed in conjunction with the Connecticut Clean Energy Fund's ("CCEF") Request for Proposals ("RFP") for 100 MW of renewable development projects, and also to provide a meaningful grid side distributed generation application in a highly constrained area of the grid in Southwest Connecticut ("SWCT"). By issuing the requested declaration, the Council will ensure that if it is determined that the Bridgeport Project is best suited to meet the need for Class 1 renewable energy projects in Connecticut, the Project will be ready and able to start providing such generation by late 2007. Moreover, the Bridgeport Project can provide this public benefit without substantial adverse environmental effects.

Copies of the Petition will be served upon various City of Bridgeport officials at the time the Petition is filed with the Connecticut Siting Council. Copies of the Petition will be available, on or about August 18, 2006, for review during the normal business hours at the following office:

Connecticut Siting Council
10 Franklin Square
New Britain, CT 06037
(860) 827-2935

Inquiries may be addressed to the Connecticut Siting Council or the undersigned.

Applicant:

Bridgeport Fuel Cell Park
c/o Mr. James Murkette
PurePower, LLC,
406 Farmington Avenue
Farmington, CT 06032

Its Counsel:

John A. DeTore, Esq.
Rubin and Rudman, LLP
50 Rowes Wharf, 3rd Floor
Boston, MA 02110
(617) 330-7149

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

PETITION OF BRIDGEPORT FUEL CELL PARK, LLC FOR A DECLARATORY RULING THAT NO CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED IS NECESSARY FOR THE 14.4 MW FUEL CELL PROJECT IN BRIDGEPORT, CONNECTICUT

August 18, 2006

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BRIDGEPORT FUEL CELL PARK, LLC'S PETITION FOR DECLARATORY RELIEF

Pursuant to Section 16-50*k* of the Connecticut General Statutes and Section 16-50*j*-38 of the Regulations of Connecticut State Agencies ("R.C.S.A."), Bridgeport Fuel Cell Park, LLC ("Bridgeport" or the "Petitioner") submits this Petition to the Connecticut Siting Council ("Council") for a Declaratory Ruling that Bridgeport's 14.4 megawatt ("MW") fuel cell project located in Bridgeport, Connecticut (the "Project") will not have a substantial adverse environmental effect, and that therefore no Certificate of Environmental Compatibility and Public Need is required.

Bridgeport submits this Petition in conjunction with the Connecticut Clean Energy Fund's ("CCEF") Request for Proposals ("RFP") for 100 MW of renewable development projects, and also to provide a meaningful grid side distributed generation application in a highly constrained area of the grid in Southwest Connecticut ("SWCT"). By issuing the requested declaration, the Council will ensure that if it is determined that the Bridgeport Project is best suited to meet the need for Class 1 renewable energy projects in Connecticut, the Project will be ready and able to start providing such generation by late 2007. Moreover, as discussed further below, the Bridgeport Project can provide this public benefit without substantial adverse environmental effects.

I. Project Overview

A. Statement of Purpose

The Bridgeport Project is being proposed in response to an RFP issued by the CCEF. The CCEF was created by the Connecticut General Assembly and is administered and managed by Connecticut Innovations, a quasi-public organization. Connecticut has issued a legislative mandate to distribution companies to contract for no less than 100 MW of clean energy under long term Power Purchase Agreements ("PPAs") by July 1, 2008.[1] For these projects to qualify for special treatment, they must be funded by CCEF as set forth by legislative mandate.

On May 15, 2006, the CCEF issued an RFP for Round 2 of the Project 100 Program for Long-Term Power Purchase Contracts. Bridgeport will be submitting a bid in response to the RFP proposing to provide up to 14.4 MW of fuel cell generating capacity in Bridgeport, Connecticut. If Bridgeport's bid is accepted, the Project will enter into a 20 year PPA by July 1, 2008. Thus, Bridgeport seeks the Council's approval of this Petition so that if its bid is accepted, it will have all the necessary approvals in place in time to meet this deadline.

B. Brief Description and Location of the Bridgeport Fuel Cell Park

The Bridgeport Fuel Cell Park will be located on an approximately two acre remediated Brownfield site on Hancock Street in south Bridgeport. A copy of the site location map and aerial views are provided at Tab 1. The site is bordered to the north by Carr's Ice Cream, a large tile

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[1] *See* C.G.S. § 16-244c as amended by § 4(j)(2) of Public Act 03-135, An Act Concerning Revisions to the Electric Restructuring Legislation, P.A. 05-01, An Act Concerning Energy Independence, June Special Session and P.A. 04-247, An Act concerning Minor Revisions to the Electric Utility Provisions.

warehouse to the east, to the west by the former Lesbia Street (this is not a thru street; there are barriers on both ends of the street), and to the south by Railroad Avenue The Metro North/Amtrak rail line lies parallel to Railroad Avenue immediately to the south of the project site. Interstate 95 lies 640 meters further to the south. The lot immediately to the east of the project site contains a newly constructed tile warehouse. The lot immediately to the west of the project site is vacant as a large industrial building was recently razed.

The Project will consist of FuelCell Energy's ("FCE") DFC 3000 placed in a six unit configuration. Each unit is rated at 2.4 MW and the total 14.4 MW will enter the distribution system via two circuits located adjacent to the site. This area of the United Illuminating system is particularly congested and can support this introduction of power, offsetting an equivalent amount of congestion. Output from the units will be generated at 400 Volts and stepped up to 13.8 kilovolts to interconnect with the distribution system. Further information about the DFC 3000 Fuel Cells is discussed in Section IV below and provided at Tab 2. Other equipment on site includes water treatment equipment, main process skid with a heat recovery unit, anode gas oxidizer and main air blowers, and the electrical balance of plant including transformers. A copy of the initial site plan is provided at Tab 3.

C. Statutory Authority

Section 16-50k of the Connecticut General Statutes requires entities prior to preparing a site for or commencing construction of a facility that may, as determined by the Council, have a substantial adverse environmental effect in the state to obtain a Certificate of Environmental Compatibility and Public Need from the Council. This Petition is being submitted pursuant to Section 16-50k(a), which provides that no Certificate is required and the Council shall approve by declaratory ruling the construction or location of any fuel cell, unless the Council finds a substantial adverse environmental effect. As demonstrated below, no Certificate is required because the Bridgeport Project will not have a substantial adverse environmental effect. In addition, the Connecticut legislature has identified a need for a diverse supply of installed clean energy resources. Thus, if Bridgeport is selected to meet this need, it will provide this public benefit without any substantial adverse environmental effects.

D. Applicant and Attorney Information

The Bridgeport Fuel Cell Project is being developed by Bridgeport Fuel Cell Park, LLC. Bridgeport is a Connecticut corporation with its principal place of business at 3 Great Pasture Road, Danbury. Bridgeport consists of FCE, a Connecticut developer and manufacturer of clean and efficient fuel cell generators, Pure Power, LLC, a Connecticut firm specializing in the development of large-scale fuel cell power generation projects in Connecticut, and Pinpoint Power, LLC, which develops, owns and manages power generation and demand side management assets in the northeast, including projects addressing continuing reliability problems in southwest Connecticut.

Service for the proposed Bridgeport Fuel Cell Project should be directed to John A. DeTore, Esquire, at Rubin and Rudman LLP, 50 Rowes Wharf, Boston, Massachusetts 02110 and James Murkette, Pure Power, 406 Farmington Avenue, Farmington, Connecticut 06032.

II. Bridgeport's Community Outreach

Bridgeport has been working closely with the Senior Economic Development Associate for the City of Bridgeport's Office of Planning and Economic Development. Interviews have been held with neighbors and several members of the area business association (the West End Civic Association). At meetings about the nature and operation of a fuel cell, stakeholders concerns included noise generation and the visual profile of the project. Since the project is a low profile, and the noise is at acceptable levels, project developers are working with neighbors to ensure landscaping makes the pedestrian view of the project pleasing to the eye. Extensive landscaping and decorative fencing will ensure a low or improved visual impact of the project to the area. Bridgeport enjoys strong support from the Office of the Mayor due to the benefit to the tax base with no demand on City infrastructure and no adverse impact of the project.

III. Why the Bridgeport Project is Necessary

The legislature has created a clear mandate for the development of clean, alternative energy sources such as fuel cells. The CCEF is chartered to use ratepayer surcharge monies to promote investment in renewable energy sources in accordance with a comprehensive plan. The purpose of this plan is:

> "... to foster the growth, development and commercialization of renewable energy sources, related enterprises and stimulate demand for renewable energy and deployment of renewable energy sources which serve end-use customers in this state. Such expenditures may include, but not be limited to, grants, direct or equity investments, contracts or other actions which support research, development, manufacture, commercialization, deployment and installation of renewable energy technologies, and actions which expand the expertise of individuals, businesses and lending institutions with regard to renewable energy technologies."

C.G.S.§ 16-245n(a).

In 2003, recognizing the factors hindering the growth of a clean energy marketplace, the legislature enacted additional legislation through PA 03-135. Revisions in the new legislation include:

- Modification to the Renewable Portfolio Standard ("RPS") schedule (see below)
- Redefinition of Class I and Class II renewable energy sources
- Regional renewable energy certificate trading
- Extension of the RPS to apply to the transmission and distribution companies (CL&P and UI)

The new RPS schedule requires the following percentages to be a part of the transitional standard offer ("TSO") and of the fuel mix utilized by competitive electricity providers:

Table 1
RPS Schedule

Compliance Year	Class I (%)	Class I or II (%)	Total
2004	1.0	3.0	4.0
2005	1.5	3.0	4.5
2006	2.0	3.0	5.0
2007	3.5	3.0	6.5
2008	5.0	3.0	8.0
2009	6.0	3.0	9.0
2010	7.0	3.0	10.0

Failure to comply with the RPS requirements will result in an alternative payment to the electric transmission and distribution companies providing TSO service and/or competitive electricity providers. The alternative payment was set at 5.5 cents per kWh.

PA 03-135 also established an Alternative Transitional Standard Offer ("ATSO"). The new legislation requires the Department of Public Utility Control ("DPUC") to develop a program whereby CL&P and UI will offer clean energy product(s) to TSO ratepayers. This ATSO includes an option(s) that exceeds the amount of clean energy mandated under the RPS.

PA 03-135 requires CL&P and UI to file with the DPUC one or more long-term contracts to purchase at least 100 MW of power from Class I renewable energy projects that have received funding from the CCEF. The contract price is not to exceed wholesale power costs plus up to 5.5 cents per kWh. The costs associated with this requirement are recoverable from ratepayers as long as: (1) the contracts run for at least 10 years, and (2) the projects begin operation on or after July 1, 2003.

The Bridgeport Project is being developed in response to this need for additional clean energy generation in Connecticut. Bridgeport is a prime candidate to be selected in the Project 100 Program for numerous reasons.

First, Bridgeport already has successfully participated and was an important component in Round 1 of the CCEF's RFP for Class 1 Renewable Development Projects.

Second, Bridgeport is in the position to meet the time restraints associated with the RFP and its requirement that projects enter into long term PPAs by July 1, 2008. The Bridgeport Project site is located in an industrial area and few permits will be needed to construct the Project.

Finally, Bridgeport is being sited in SWCT because of a concern that existing generation and transmission within SWCT may not be capable of supplying electric load without overloading lines or causing severe low voltage conditions. The Bridgeport Project is located at an ideal site in SWCT to meet the urgent reliability concerns identified by the DPUC and ISO-New England. Numerous reports and studies have been conducted by ISO-New England, the DPUC and other entities regarding reliability concerns in Connecticut and all agree that SWCT and particularly, the Norwalk/Stamford ("NOR") area, is facing serious reliability problems.

For instance, a July 2002 DPUC report concludes: "It is clear that SWCT is facing a serious situation that may get worse before long-term solutions, such as transmission upgrades and new generation, are put in place." DPUC Docket No. 02-04-12, Connecticut Department of Public Utility Control Investigation into Possible Shortages of Electricity in SWCT During Summer Periods of Peak Demand Final Report ("DPUC Summer Shortage Report") at 35.

In its most recent Regional System Plan issued last year ("RSP05"), ISO-New England ("ISO-NE") identified continuing issues in Connecticut and in the SWCT and NOR sub areas that have not yet been resolved although progress with transmission construction is ongoing. ISO-NE noted that Phase I of the Southwest Connecticut Reliability Project has been delayed by one year and Phase II has been delayed for two years. The transmission constraints and increased electric demands in the SWCT area continue to present reliability and economic issues for electric consumers in Connecticut. Tab 4 includes the RSP05 Executive Summary

Projected needs in SWCT and NOR for the 2005-2014 period for both peak load and energy are significant. Net energy over the forecast period is estimated to grow at 1.6% in both SWCT and NOR. Summer peak loads are expected to increase by 1.6% in SWCT and 1.4% in NOR. Winter peak loads are expected to increase by 1.5% for SWCT and 1.8% for NOR. RSP05 at 30. These projected increases represent a significant component of Connecticut's overall peak load with SWCT representing 32.3% and NOR 17.6% of the total state peak load.

In the Draft Report of the Connecticut Siting Council Review of the Ten-Year Forecast of Connecticut Electric Load and Resources issued May 26, 2006 ("CSC Draft Report"), the Council notes its legislative mandate pursuant to CGS Sec 16-50k(a) to review all fuel cell proposals. CSC Draft Report at 15. In the CSC Draft Report, the Council states " fuel cells are well suited for backup generation, supplemental base-load generation and distributed generation". Id. The CSC Draft Report also states that "The Council strongly encourages the use of fuel cell technology, particularly from in-state companies." Id.

In summary, the CCEF and CSC have determined that strategically located clean energy projects like the Bridgeport Project are necessary for the reliability of the electric power supply of the state. By issuing Bridgeport declaratory relief, the Council will ensure that if it is determined that the Bridgeport Project is best suited to meet that need, the Project will be ready and able to do so.

IV. Description of the Proposed Facility

A. Technical Specifications

The Bridgeport Fuel Cell Park will include six FCE DFC 3000 Direct FuelCells each rated 2.4 MW at full rated power, or equivalent. The fuel cells will be fueled by natural gas that is available in the site vicinity. Fuel cells are electrochemical power generators. As long as fuel, such as natural gas and air are supplied, a fuel cell will produce electricity and heat without combustion and without the quantities of air pollutants associated with burning fuel. FCE's products are called Direct FuelCells because, unlike other fuel cell technologies, Direct FuelCells can use hydrocarbon fuel, such as natural gas, without the need to first create hydrogen in an external fuel processor.

As discussed further below in greater detail, Direct FuelCell power plants have a variety of benefits and features, including:

- Direct FuelCell power plants are the most efficient fossil fuel generators in this size range. This means more electricity using less fuel.
- Direct FuelCells are very clean.
- Direct FuelCells are quiet, making them friendly neighbors.
- Direct FuelCell power plants produce high quality electricity for today's high-tech systems.
- Direct FuelCells can operate on a variety of fuels, for use in a wide range of applications and settings.

Fuel cells are electromagnetic devices that efficiently convert chemical energy from a hydrogen-rich fuel into electric power and heat, with exceptionally low emissions. Similar to a battery, a fuel cell has many individual cells, grouped to together to form a "stack." Each fuel cell contains an anode, a cathode, and an electrolyte layer. When a hydrogen-rich fuel such as synthesis gas enters the "stack," it reacts electro-chemically with oxygen to produce electric current and water.

While a typical battery has a fixed supply of energy, fuel cells generate electricity as long as fuel, such as synthesis gas, is supplied.

The carbonate fuel cell derives its name from its electrolyte which consists of potassium and lithium carbonates. Carbonate fuel cells generate hydrogen directly from the synthesis gas, and therefore, the plants do not require additional facilities to provide hydrogen as do other types of fuel cells.

The synthesis gas is fed to the fuel cell power plant where methane is internally reformed and carbon monoxide ("CO") is shifted to carbon dioxide ("CO_2") and hydrogen. Spent fuel exits the anode and is consumed in the anode exhaust oxidizer to supply oxygen and CO to the cathode. The resulting electrochemical reactions in the fuel cell anode and cathode produce DC power, which is converted to AC power by the power conditioner. The cathode exhaust supplies heat to the fuel clean up and fuel moisturizer.

The FCE DFC 3000 units have proven to be reliable and environmentally sound, and are easy to dispatch, operate and maintain. Since they have no moving parts (except for cooling fans), they are not a threat to grid stability. <u>See</u> Tab 2.

The Bridgeport Project will comply with all applicable state and federal air quality requirements. No air permit is required from the Connecticut Department of Environmental Protection ("DEP") because the Project's emissions will all be below levels which would render the project a "major stationary source" as defined at R.C.S.A. § 22a-174-1(57) and because the potential emissions of all pollutants are less than 15 tons per year ("tpy").

The proposed site is located within a mixed-use area where the primary uses are industrial and commercial. The site is immediately adjacent to an active rail line and is located approximately 640 meters north of Interstate Highway 95, a major transportation artery. As discussed below and in Section VI.I.6, noise analysis of the Project area indicates that ambient noise levels are consistent with an urban setting.

The fuel cell generator units and ancillary equipment are designed to minimize noise. Most of the equipment planned for the installation will produce no sound. The fuel cell technology does not require many of the mechanical sources of noise that are typical of power generation facilities. Consequently, the Project will meet all applicable noise standards.

Installation and operation of the Bridgeport Project will be designed and managed to ensure maximum safety for employees and the surrounding community. All installation and operation activities and equipment for the Project will be in accordance with good engineering practice and Federal, state and local regulations, and will comply with the latest editions of the regulations of all-applicable governmental agencies and engineering associations.

The Project will store approximately 48,000 SCF of nitrogen in bulk in a tank, and will use a vaporizer to turn it from a cryogenic liquid to a gas. Safety and emergency systems will be implemented to ensure safe and reliable facility operation. The Project site will be enclosed by a security fence. The Project will develop an Emergency Action Plan which will include information on emergency operations and shutdowns, safety warning systems, emergency response personnel and duties, employee protection, training and drills.

B. Air Quality

A summary of the typical criteria pollutant emissions for oxides of nitrogen ("NO_x"), oxides of sulfur ("SO_x"), particulate matter ("PM"), CO, and volatile organic compounds ("VOC") from each natural gas-fired DFC 3000 fuel cell is presented in Table 2 below. The emissions are presented as lb/MWh and lb/hr assuming each fuel cell produces 2.4 MWh of full-rated power. The potential emissions assuming a full year (8,760 hours) of operation are also presented.

Table 2

Typical Criteria Pollutant Emissions from One DFC 3000 Fuel Cell Fired On Natural Gas

Pollutant	lb/MWh	lb/hr	Potential Emissions (tpy)
NO_x	0.02	0.048	0.21
SO_x	0.001	0.0024	0.01
PM	0.01	0.024	0.11
CO	0.1	0.24	1.05
VOC	0.02	0.048	0.21

Assuming there will be six DFC 3000 fuel cell units on site, the maximum potential criteria pollutant emissions are presented in Table 3 below.

Table 3

Total Potential Project Emissions Assuming Six DFC 3000 Fuel Cells Onsite

Pollutant	Total Potential Emissions (tpy)
NO_x	1.26
SO_x	0.06
PM	0.63
CO	6.31
VOC	1.26

A comparison of the lb/MWh criteria pollutant emissions from the proposed Bridgeport Fuel Cell Park with two nearby Bridgeport power plants (Bridgeport Energy at 10 Atlantic Street and Wheelabrator Bridgeport, L.P. at 6 Howard Avenue) is presented in Table 4 below.

Table 4

lb/MWh Comparison of the Bridgeport Fuel Cell Park with Bridgeport Energy and Wheelabrator Bridgeport

Pollutant	Bridgeport Fuel Cell Park	Bridgeport Energy[1]	Wheelabrator Bridgeport[2]
NO_x	0.02	1.24	5.75
SO_x	0.001	0.39	5.23
PM	0.01	0.01	0.40
CO	0.1	0.18	1.71
VOC	0.02	0.03	0.75

[1]Calculated from Bridgeport Energy's Title V Operating Permit using the lb/hr emission limits and a total output of 530 MW or 260 MW per unit.

[2] Calculated from Wheelabrator Bridgeport's Title V Operating Permit using the lb/hr emission limits and a total output of 59.65 MW or 19.88 MW per boiler.

In addition to the emissions from the fuel cells themselves, there will also be minor emissions associated with a 10 mmBtu/hr gas-fired startup burner that will be included with each fuel cell power plant. The burner is used to heat the plant to its required operating temperature at start up only. Since the fuel cells are anticipated to run constantly, it is anticipated that the burners will only be used a few times a year. The criteria pollutant potential emissions (assuming 8,760 hours of operation) associated with each gas-fired burner along with the fuel cells are less than 15 tons per year ("tpy") using conservative EPA AP-42 emission factors for the gas-fired burner.

Total emissions from the proposed Bridgeport Fuel Cell Park will be below levels that would render the Project a "major stationary source" as defined at R.C.S.A. §22a-174-1(57). In particular, total emissions of NO_x and VOC from the units will be less than the 25 tpy major source thresholds for these pollutants as defined at §22a-174-1(57)(A) for sources located in areas designated as severe non-attainment with respect to the one-hour National Ambient Air Quality Standard for ozone, such as Bridgeport. If the emission rate of any non-attainment pollutant exceeds the non-attainment major source threshold on a facility-wide basis, the facility would be deemed a major source in a non-attainment area. As presented in Table 3, the Project's maximum emissions will be substantially below the severe non-attainment area thresholds for VOC and NO_x. Thus, the Project will be a minor stationary source and is not subject to Federal Non-Attainment New Source Review ("NSR"). Similarly, there is no requirement to obtain emission offsets for this Project as it will be below the non-attainment NSR major source thresholds.

As per the U.S. Environmental Protection Agency ("EPA"), the entire state of Connecticut is designated as in attainment for SO_2 and CO. However, in December 2004, the EPA designated Fairfield and New Haven counties as non-attainment areas for fine particles ("PM 2.5"). The DEP must submit plans by 2008 that will show how these counties will meet the PM 2.5 standards. The Project's total PM 2.5 emissions will be less than 1 tpy. With these very low emission levels, the Project's operations will assist Connecticut in meeting its air quality improvement goals.

As per R.C.S.A. §22a-174-3a, Permit to Construct and Operate Stationary Sources, a permit to construct and operate each DFC 3000 is not required because the potential emissions of any individual air pollutant are less than 15 tpy, the source is not a new major stationary source, and the source is not a new major source of hazardous air pollutants. The fuel cells are also not subject to R.C.S.A. §§22a-174-3b or –3c, the DEP's "permit by rules" because the potential emissions from each fuel cell are less than 15 tpy. Thus, there are no registrations or applications required to be submitted to the DEP nor are there anticipated to be any approvals from the DEP Air Bureau required prior to the construction and operation of the Project.

C. Alternative Technologies

Fuel Cells are an alternative technology and are considered a Class I renewable energy source in Connecticut. The only comparable technology available would be another type of fuel cell, such as the United Technology P25, which is also available commercially. However, the United Technology fuel cells have significantly smaller output (200 KW) and would therefore require many more units to get the same total output. These two manufacturers are the leading stationary generation fuel cell manufacturers in the world. Commercially viable alternatives to these kinds of equipment, with similar emission profiles and reliability levels, do not yet exist.

D. Federal Aviation Administration Determinations

Because the height of unit structures do not exceed the Obstruction Standards of Federal Aviation Regulations, Part 77, a determination of no hazard to air navigation from the Federal Aviation Administration is not required.

E. The Source of the Project's Fuel and Water and Location of Existing and Proposed Pipelines or Other Infrastructure Necessary to Provide that Fuel and Water to the Proposed Project Will Minimize Environmental Impacts With Its Use of Existing Infrastructure

The Project's natural gas fuel will likely be supplied by Southern Connecticut Gas Company via one of three pipelines that run adjacent to the project based on need and capacity. Presently negotiations are underway to connect to the twelve inch pipeline that runs along the State Street Corridor on the north side of the project beyond Carr's Ice Cream.

The sewer will connect to the Railroad Avenue pipe that runs along the south side of the project, adjoining the property. If a secondary sewer is needed there is also sewer service available from the North Side of the site.

Water will be tapped from the existing conduit that runs along the east side of the project which is a perpendicular to the main on State Street. Each fuel cell requires approximately 10,080 gallons per day ("gpd") of raw (city) water and discharges approximately 5,040 gpd of wastewater at approximately ambient temperature, with few contaminants. The remaining water is released as steam. Assuming six fuel cells, the total water requirements will be approximately 60,480 gpd with a discharge of approximately 30,240 gpd. Water for operation is available from the City from a nearby water line. Wastewater discharge will be sent to the City via a nearby wastewater line.

F. A Stormwater Management Plan Is Being Developed With Finalization of the Site Plan

The Project will operate pursuant to a Stormwater Pollution Prevention Plan. No Spill Prevention and Countermeasures Plan is needed because the Project will not store more than 1,320 gallons of oil above ground.

G. Transmission Interconnection Will Have Minimal Impacts

The site has ready access to the distribution and transmission networks which will minimize the cost of interconnection due to the close distance from resources. Preliminary discussions with UI have indicated a potential for connecting the Project to the distribution network through the use of two or three overhead circuits local to the site. Connecting directly to the distribution system will provide economic benefits to the region through reduced system losses which are achieved by unloading the Pequannock Substation and transmission networks.

According to UI, individual distribution circuits can support between six and eight megawatts of load. All distribution circuits leave the Pequannock Substation via an underground cable that limits the capacity of each circuit to 8 MW. UI has also indicated that the largest allowable fuse size could limit the Park's output to 3 MW or less per fuse, depending on the utility's standard of practice of allowable encroachment to the fuse rating. UI will confirm the capacity of the existing overhead circuits and fuses, and determine if any upgrades will be required during the interconnection study.

In addition to the overhead circuits, Bridgeport has requested UI to consider installing two 15 MW underground express feeders to support the Park's maximum output of 14.4 MW. UI has indicated the potential to use existing duct banks installed in both Railroad Avenue and State Street which would substantially reduce required construction time and costs. Installing two full capacity circuits would significantly increase the availability of the plant while reducing the impact to existing underground circuits.

H. The Site Selection Process Minimized Potential Environmental Impacts

Bridgeport developed and employed a site selection process designed to secure a least-cost, least environmental impact site for its proposed generating facility. The selected site is a reclaimed Brownfield site that will not support a residential use. It is proximate to fuel, water and sewer assets and was secured through a competitive bid process issued by the City of Bridgeport.

During the earliest stages of Project development, Bridgeport narrowed its search to sites in SWCT in close proximity to electric substations and transmission lines. The Project development team focused on SWCT because this area was identified by ISO-New England as a constrained location where generating assets would provide the highest value to grid stability and ratepayer relief on Federally Mandated Congestion Charges. It was also identified as being a location where existing generation and transmission may not be capable of supplying electric load during peak conditions without overloading lines or causing severe low voltage conditions.

Bridgeport concluded that cost considerations rendered it necessary to site the Project in close proximity to major electric transmission facilities. In this manner, Bridgeport could minimize interconnection costs as well as some of the other complexities associated with the construction of new transmission lines and facilities. Proximity to major electric transmission facilities would provide the additional benefit of minimal environmental impact and community impacts associated with interconnecting the Project with the existing electric system.

To summarize, Bridgeport's site selection process incorporated the following threshold criteria:

1. A proposed site location with the possibility of acquiring the necessary land rights.
2. A proposed site location in a municipality in SWCT.
3. A proposed site location in a municipality where electric substation and transmission or distribution lines are located in close proximity to the site.
4. A proposed site that is zoned to promote industrial and business recruitment and retention, such as for the proposed facility.
5. A proposed site location with a low risk for soil contamination or other environmental remediation requirements.
6. A proposed site that was once used for an industrial facility.
8. Availability of sufficient water and wastewater disposal at a proposed site that would enable operation of the proposed facility to begin quickly.
9. The geology of the proposed site must accommodate the development of an industrial project of this type, i.e., no soil with potential for differential settling.
10. No apparent structures of archaeological or historical significance at the proposed site.
11. No apparent threatened or endangered species or their habitat at the proposed site.

Through the application of the above criteria, the selected site for the Bridgeport Project was determined to be optimal for Project development.

I. Effect of the Facility on the Environment, Ecology, and Scenic, Historic, and Recreational Values

1. <u>The Project will not have a substantial adverse effect on public health</u>

(a) Air quality

As described in Section VI. B. above, the Bridgeport Project complies with all applicable Connecticut and Federal air quality requirements and the units will not be a major source of air pollution and will not need state or federal air permits to operate.

(b) Site contamination

In April 2003 Fuss & O'Neill, Inc. ("F&O") prepared a Phase I Environmental Site Assessment ("ESA") for the City of Bridgeport Department of Economic Development for a majority of the project site and surrounding area. Portions of the site and an adjacent property are currently being remediated by CBS/Viacom Company (e.g., Bryant Electric).

In September 2003 F&O prepared a Phase II/III ESA. The entire development project by the City has been referred to the DEP Urban Sites Program and investigation activities as required to demonstrate compliance with Connecticut Remediation Standard Regulations. Areas of concern ("AOCs") reported in the Phase I ESA include the potential presence of wide-spread polluted fill across the project area and uninvestigated site specific AOCs resulting from historic site use. Tab 5 contains a summary of the AOCs identified with the Proposed BCA Development Site

The adjacent former Bryant Electric Site (1421 State St.) is being remediated under a Remedial Action Plan ("RAP") developed by Woodard and Curran in December 2005 for the current owners of the property (CBS/Viacom). The program includes remediation of soil and groundwater. Remedial activities include relocation of impacted soils under proposed site structures to render these soils inaccessible or environmentally isolated. Ongoing in-situ soil and groundwater remediation will continue at the adjacent site and the proposed site, as needed, to fully address soil and groundwater in accordance with DEP Remediation Standard Regulations. This activity will not affect the development of the proposed project. Note that the adjacent former Byrant Electric Site has been developed under the RAP and is providing an economic benefit to the City. Similarly, the proposed fuel cell Project represents an appropriate use for this Brownfield area and will provide economic benefits to the City.

2. The Project will not have a substantial adverse effect on safety

Installation and operation of the Bridgeport Project will be designed and managed to ensure maximum safety for employees and the surrounding community. All installation and operation activities and equipment for the Project will be in accordance with good engineering practice and Federal, state and local regulations, and will comply with the latest editions of the regulations of all applicable governmental agencies and engineering associations. Water and nitrogen for Project operation are appropriately contained to prevent release. Safety and emergency systems will be implemented to ensure safe and reliable facility operation. The Project site will be enclosed by a security fence. The Project will operate in accordance with a Stormwater Pollution Prevention Plan. Thus, the Project will have no substantial adverse safety impacts.

3. The Project will not have a substantial adverse effect on existing and future development

The site for the Bridgeport Fuel Cell Project is approximately 2 acres in size and is vacant. The prior use of the site was for industrial operations, and the site is in an Industrial Light Zone in which power generating plants are allowed as a "manufacturing/processing use" by Special Exception Permit from the Bridgeport Zoning Department. Tab 6 shows the zoning for the project site and surrounding area. The Bridgeport Project will comply with (and be well below) the maximum building height in this district, 75 feet.

Redevelopment of the site for industrial purposes is wholly compatible with its historic use, surrounding uses, and City of Bridgeport zoning and development plans for the site area. The Bridgeport Project will not alter the character of the area. Thus, no adverse impacts to land use or zoning will occur from the operation of the Bridgeport Project.

4. The Project will not have a substantial adverse environmental effect on adjacent land use

As discussed previously, the adjacent land uses are commercial and industrial in nature and will not be adversely affected by the project.

5. The Project will not have a substantial adverse environmental effect on ecological integrity

The parcel is a previously disturbed former industrial facility, with no wetlands on site and no endangered or threatened species or habitat as discussed further below. Thus, there are no valuable ecological features on the site, which is one of the reasons it was selected. Stormwater will be managed on site during operation to ensure runoff quality and quantity are consistent with existing conditions. The Project will operate in accordance with a Stormwater Pollution Prevention Plan. Therefore, the Project will have no substantial environmental effect on ecological integrity.

6. The Project will not have a substantial adverse environmental effect on noise

A Project noise assessment has been performed by Douglas Sheadel of Modeling Specialties, and is provided at Tab 7.

The Project site is located in Bridgeport between State Street and Railroad Avenue. This is in an industrial area where old industrial sites are being upgraded to modern commercial structures. While there are still old industrial facilities and heavy industry between Railroad Avenue and Interstate I-95, they were not used as a context for the noise study. It is the intent of this Project to contribute to the renovation plans for the area.

The property to the west of the site was an unused industrial facility until its recent removal. It is now an open field from Railroad Avenue to State Street, interrupted only by spoils piles. Beyond the empty site to the west is the Hubble Center. To the north of the site is a distribution and transportation center for Carr Ice Cream. East of the site is a huge warehouse that is under construction to provide a storage and distribution center for many kinds of floor tile. South of the site is the elevated roadbed for the Amtrak and commuter rail. Trains were occasionally noted during field studies. Beyond the railroad are widely varied industrial land uses and Interstate I-95.

The proposed installation has been designed with significant attention to protecting the community sound environment. Most of the equipment planned for the installation will produce no sound. The Bridgeport Fuel Cell Park lacks the heavy mechanical equipment that is commonly associated with electrical generation. There will be several sources of modest sound such as blowers, pumps, condenser and fans. The size of the equipment and character of the sound will be more typical of commercial building mechanical equipment than of heavy industry.

The results of the modeling indicate that the facility levels will meet the City and state criteria at both the property lines and at the nearest community receptors. Since sound decreases with distance, the sound will be less at more distant locations. Furthermore, the study indicates that the equipment sounds will be lower than the existing ambient at community locations.

Therefore, the sound from the facility is not expected to be noticeable at any sensitive land use. Thus, the Project will not cause a significant adverse effect to the surrounding area.

7. The Project will not have a substantial adverse environmental impact on recreational areas and areas of natural history including areas of geologic, ecological, and archaeological interest

Existing recreational and historic resources will not be adversely impacted by the Project. As discussed above, the site is surrounded on almost all sides by industrial, commercial, utility and transportation uses and does not contain any such areas. There are no areas of ecological and archaeological interest, as discussed further in subsections IV.I.3 below.

There are also no areas of geologic interest. Mapping of surficial geology in the site area identifies the soils at the site as 307 Urban land and artificial fill. Information about site geology is presented at Tab 8. Urban Land is defined as built up areas of level to steeply sloping fill material overlying native surficial geology deposits. These soils are typically moderately to well drained.

The geology of a given area dictates the degree to which a proposed development is at risk from natural phenomena such as seismic activities, landslides, slumping, wasting, liquification and karst-related subsidence. Landslides and areas of creep/slump are generally a function of steep topography, depth to bedrock and groundwater, availability of surface runoff, and bedrock fracturing and angle of dip. The conditions necessary to produce the majority of aforementioned hazards are absent at the Project site. Moreover, no seismically active faults have been identified at the property or nearby.

Bridgeport will conduct limited site grading of the portion of the site on which the Project is located, which grading further screens the Project. Other than that grading and landscaping, no other soil disturbances are necessary for Project operation. Thus, the Project will have no significant adverse effect on the existing site soils or geology and will have minimal risk from a seismological event.

8. <u>The Project will not have a substantial adverse environmental impact on visibility</u>

A Visual Impact Analysis of the Project is provided at Tab 9. The Project site is located on a two acre property in the City of Bridgeport. The suitability of the location is enhanced by the largely hidden view shed. As discussed above, the site is surrounded on almost all sides by industrial, commercial, and transportation uses. The elevated railroad to the south, the warehouse to the east, and the business structure to the north all obscure the facility from residential views. This area has been the target of a large-scale improvement from heavy industrial to up-to-date commercial character.

Consistent with this trend, the Project will be low in height and will be installed such that the equipment is largely screened from general view. The site will include a 6-foot berm in conjunction with a 6-foot solid screen wall to visually screen the ground-level equipment. Further screening will be provided by plantings of 8 to 10 foot trees on and around the berm. Both evergreen trees and deciduous trees will be intermixed to provide a park-like setting in all seasons. As a result, the community views of the proposed facility will be in character with that of recently upgraded properties in the area, and an improvement over the traditional industrial uses in the area. In contrast to other types of power generating facilities, the fuel cell equipment has a very low profile that can be effectively screened with site features. The highest vent on the unit is only 30 feet above ground level, making this facility at or below neighboring structures.

The Project's potential visual impacts were considered in the design and placement of the Project structures. One consideration in siting the facility was to select a site from which visual impacts resulting from the Project would be minimal. The proposed site was selected in part due to the fact that the surrounding industrial areas significantly buffer the Project from three sides. Furthermore, by selecting a disturbed industrial area the Project will displace no existing scenic resources.

Based on the analysis, the proposed Bridgeport Fuel Cell Park will have little impact on the visual character of the community. The Project will be visible from certain locations within the area, but those viewpoints are in the context of existing buildings, utility poles and roadways. The equipment colors are based on white and gray tones that help them blend visually into the neighboring buildings. While this is the most likely selection, actual colors will be selected in cooperation with the review agencies. The results of the study demonstrate that the facility will provide a modern foliated look that is consistent with other properties in the area that have been upgraded to revitalize the commercial area.

Therefore, due to the low height of the equipment, the existence of obstructions, and the fact that the Project will be designed to minimally impact the aesthetic qualities of the surrounding area, the Project is not anticipated to significantly impact the existing viewsheds in any direction. Given the small size of the Project and the industrial nature of the surrounding land uses, the Project will not have a substantial adverse effect on visual resources.

9. <u>The Project will not have a substantial adverse environmental impact on roads or traffic</u>

The Bridgeport Fuel Cell Park will be located approximately 1.4 km from Exit 26 off of Interstate 95. A highway interchange provides direct access from the Interstate to Wordin Street which leads to Railroad Avenue and the main entrance to the proposed facility on Hancock Street. These roadways are adequate for all deliveries to support the construction and operation of the Project. These same roadways have been used in the past to deliver major equipment to other facilities in the area.

Operation of the fuel cells will not result in adverse traffic impacts on area roadways. Operational personnel trips will be insignificant, as the site will be manned by approximately three full time equivalent employees.

The limited number of truck trips necessary to support installation and operation is not sufficient to have any adverse impacts on local roadways or traffic conditions. Each DFC 3000 is delivered on six skids which require four trucks. Each unit will be installed in two month intervals. Heavy Industrial duty trucks will be at the rate of 10-15 trips (including rigging cranes) per two month period and perhaps 4-10 light duty pickup trucks per day. At this time, no site access or traffic related issues have been identified which would prevent or delay the installation and operation of the fuel cells.

In light of the limited number of truck trips necessary to support installation and operation, no adverse impacts on local roadways or traffic conditions is expected.

10. <u>The Project will not have a substantial adverse environmental impact on wetlands and watercourses</u>

The Project site is not located within either 100- or 500-year floodplains or the coastal zone. Further, there are no surface water bodies or wetlands in the vicinity of the Project site. Tab 10 shows the flood zones and wetlands in the vicinity of the Project site. Thus, no impacts to surface water bodies will occur from the installation and operation of the fuel cells.

A certified Storm Water Pollution Prevention Plan will be developed for both construction and operation of the facility. Stormwater discharge approval for construction will be obtained under the DEP's General Permit for Stormwater and Dewatering from Construction Activities (DEP-PERD-GP-015). This General Permit applies to all discharges of stormwater and dewatering wastewater from construction activities which result in the disturbance of one or more total acres of land area on a site regardless of project phasing. For construction projects with a total disturbed area (regardless of phasing) of between one and five acres, the permittee agrees to adhere to the erosion and sediment control land use regulations of the town in which the construction activity is conducted. No registration of this general permit is required for such construction activity as long as it receives town review and written approval of its erosion and sediment control measures and follows the Guidelines. If no review is conducted by the town, the permittee must register and comply with Section 6 of the General Permit. Stormwater discharge approval for operation will be obtained under the DEP's General Permit for Stormwater Associated with Industrial Activities (DEP-PERD-GP-014). This General Permit is for the discharge of stormwater associated with industrial activity. As per the General Permit, the registration shall be filed no later than thirty days before the date that industrial activity is initiated. This is an automatic General Permit that includes all power plants.

Based on the above, there will be no significant adverse effects on water resources or wetlands from the operation of the Project

11. <u>The Project will not have a substantial adverse environmental impact on wildlife and vegetation, including rare and endangered species, critical habitats, and species of special concern</u>

From at least 1970 until the 1990s, the site was covered by industrial buildings. Since the 1990s, the buildings were leveled and grassed areas have grown in its place. The site supports minimal wildlife. Wildlife species occurring on the site are mostly common urban and suburban species passing through the site to adjacent areas which contain food sources and cover.

The closest Natural Diversity Database Area lies 3 km to the south/southeast of the site. In May, 2006, a request was made with the DEP for a review of the Natural Diversity Data Base Map. On June 1, 2006 the Biologist/Environmental Analyst with the DEP responded that "I have reviewed the Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for an installation of a fuel cell on Lesbia Street in Bridgeport, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question." See Tab 11.

Therefore, the Project will have no significant adverse impact on protected species or habitats.

12. The Project will not have a substantial adverse environmental impact on public water supply watershed and aquifer areas

Groundwater in the site vicinity will not be impacted by the installation and operation of the Project. Limited excavation of soils will be required for installation of the units. No wastewaters will be discharged on site. Sanitary wastes for the small number of personnel required for the Project operation will be handled by temporary portable sanitary facilities. These facilities will be maintained under contract with a local, licensed septage hauler. Any limited quantities of wastewater generated during unit operations or maintenance activities will be discharge to the City sewer system. Any chemicals or other hazardous materials necessary for facility operation will be contained to prevent release to the environment.

Each fuel cell requires approximately 10,080 gpd of raw (city) water and discharges approximately 5,040 gpd of wastewater at approximately ambient temperature, with little contaminants. The remaining water is released as steam. Assuming six fuel cells, the total water requirements will be approximately 60,480 gpd with a discharge of approximately 30,240 gpd. Water for operation will be available from the City from a nearby water line. Wastewater discharge will be sent to the City via a nearby wastewater line.

Adequate supply and infrastructure are available to supply the Project. No permits or approvals were required for this water use, and adequate supply and infrastructure are available to supply the Project. Therefore, no substantial adverse environmental effect will occur from the Project's water use.

13. The Project will not have a substantial adverse environmental impact on archaeological and historic resources

Based on the prior development and use of the site for industrial purposes, as well as soil disturbance, it is considered highly unlikely that any archaeological resources exist at the site. As the areas surrounding the site are fully developed, it is also considered highly unlikely that any archaeological resources exist in the immediate site vicinity. In addition, limited soil disturbance will be required for the installation of the fuel cells. Therefore, it is unlikely that impacts to archaeological resources will occur from the installation and operation of the proposed fuel cells.

Due to the limited size/height of the units (each fuel cell is 30 ft high, 50 ft wide, and 60 ft long), no visual impacts are expected on potentially historic structures in the Bridgeport area (See the visual impact analysis in Tab 9).

No impacts to cultural (archaeological or historic) resources are expected to occur from the installation and operation of the fuel cells. In addition, no issues related to cultural resources are anticipated which would prevent or delay the installation and operation of the fuel cells.

In May, 2006, a request was made with the State Historical Preservation Office ("SHPO") regarding the project's effect on historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places. On June 23, 2006, the SHPO Division Director and Deputy responded (see Tab 12) that "this office expects that the proposed undertaking will have no effect on historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places." (Emphasis in original)

Therefore, the Project will have no substantial adverse environmental effect on cultural or historic resources.

J. Site Maps

The following maps and plans have been provided in support of this Petition: Site Plan [Tab 3], Site Location Maps [Tab 1], Zoning [Tab 6], Geology [Tab 9], Hydrography [Tab 10], and Tab 1 for the aerial photos .

V. Mitigation Measures

The Project's minimal impacts will be further minimized with the addition of the security fence and plantings, which will further screen the already low-profile facility.

VI. Permits Obtained and Yet to be Obtained

Bridgeport has obtained the following permits and approvals:

- Threatened and Endangered Species Review by the Connecticut DEP, and
- Historic Preservation Review by the SHPO.

Bridgeport will obtain the following permits and approvals:

- Special Exception Permit Approval from the City of Bridgeport to Operate an energy production facility on the Project site (or Connecticut Siting Council approval),
- A Building Permit from the City of Bridgeport,
- A General Permit for Stormwater and Dewatering from Construction Activities from the CT DEP,
- A General Permit for Stormwater Associated With Industrial Activities, from the CT DEP, and
- Approval under Section I.3.9 under ISO-New England's Transmission, Markets and Services Tariff.

The Project has secured all state and local regulatory approvals possible before this petition was filed. The Council's approval of this Petition represents the most critical of the remaining approvals necessary for the Project.

VII. Conclusion

Accordingly, for the reasons stated herein, Bridgeport respectfully requests that the Council rule that the Bridgeport Project would not have a substantial adverse environmental effect, and pursuant to Connecticut General Statutes, Section 16-50*k*, would not require a Certificate of Environmental Compatibility and Public Need.

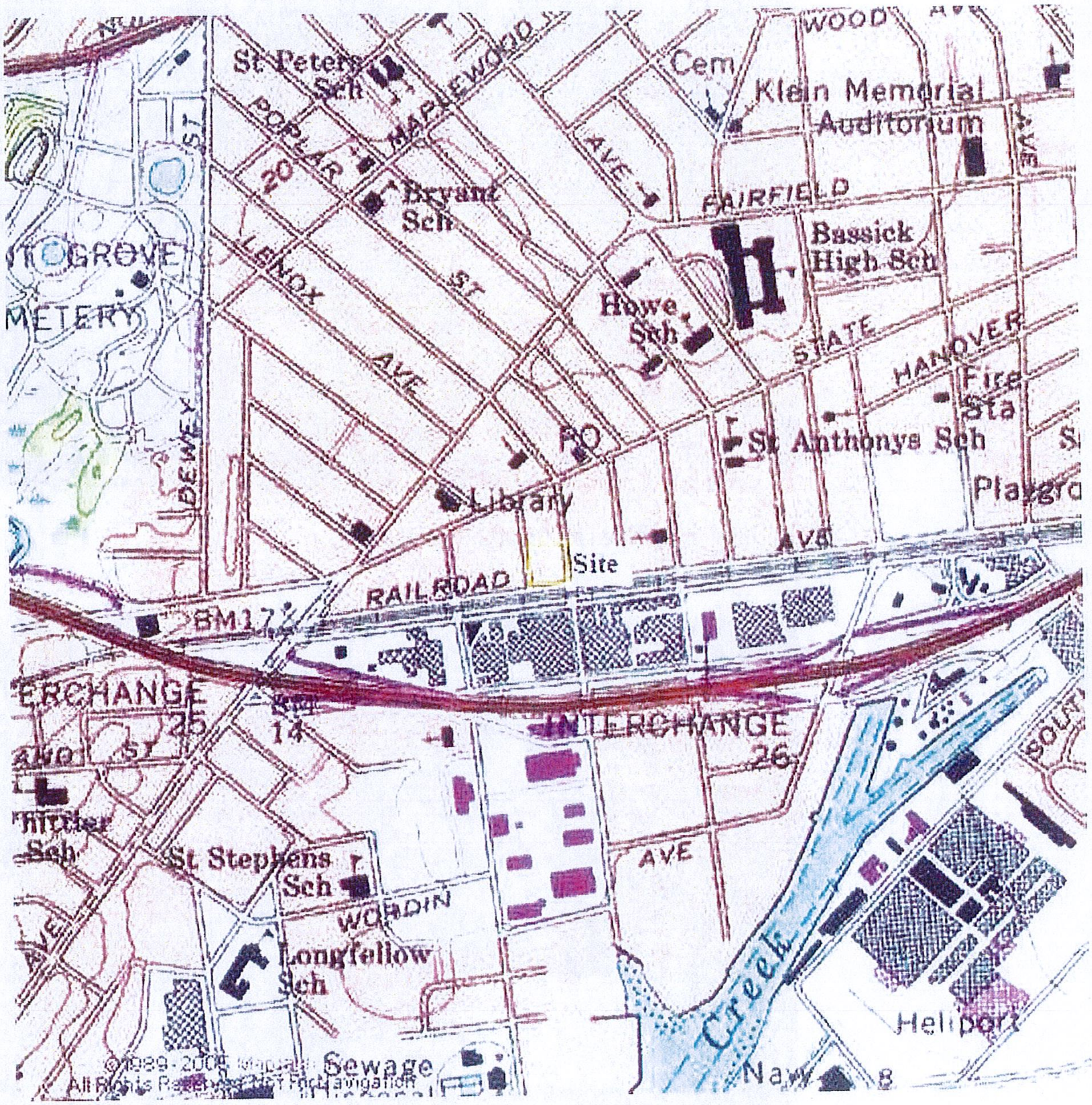
Respectfully submitted,

On behalf of Bridgeport Power, LLC

By: ______________________________

John A. DeTore
Rubin and Rudman LLP
50 Rowes Wharf
Boston, MA 02110

Dated: August 18, 2006



United States Geological Survey ("USGS") map of the site location (outlined in yellow) and surrounding area.

Aerial view of the site from the southeast.

Aerial view of the site from the north.

FuelCell Energy

DFC®3000

Direct FuelCell Advantages

Sitability Ultra Low Emissions Low Noise	Ultra low emissions of NO_X and SO_X allow the DFC® products to be placed in areas where emissions restrictions prohibit traditional generation technologies.
Applicability Modular Design	The DFC3000 has been designed for installation at a wide variety of sites including industrial, commercial and institutional areas. The modular design allows for multiple units to be combined, providing incremental capacities.

Direct FuelCell Applications

- End Users
  - Low cost on-site power generation
  - Solution for premium power needs
  - Environmental compliance
- Utilities
  - Transmission & distribution grid support
  - Grid congestion relief
  - Environmental compliance
- Cogeneration/Combined Heat & Power (CHP)
  - Steam, High Temperature Hot Water and Absorption Cooling
  - District Heating and Cooling
- Alternative Fuels
  - Wastewater treatment / anaerobic digester gas (ADG)

Experience & Capabilities
With more than 35 years of experience, FuelCell Energy is recognized as a world leader in the development, manufacture and commercialization of fuel cells for stationary electric power generation. The result of years of research and the investment of more than $530 million, our patented, carbonate Direct FuelCell technology has been demonstrated successfully in the field.

Strong Distribution and Services Alliances
Caterpillar; MTU CFC Solutions, GmbH; Marubeni Corp.; PPL Energy Plus; LOGANEnergy; Chevron Energy Solutions; Alliance Power; Renewable Technologies, Inc.; and Enbridge Inc.

FuelCell Energy

DFC®3000

Our patented Direct FuelCell® technology delivers reliable power efficiently, simply and economically. These qualities, combined with ultra-low emissions and quiet operation, provide all the elements necessary to make distributed power generation the best choice – right now – for large commercial and industrial facilities, institutions, municipalities and utilities.

Product Specification Table

Dimensions and Weights	
Water Treatment Skid	20'L x 6'W x 9.5'H, 35,000 lb
Main Process Skid	35''L x 7.5'W x 30'H, 45,000 lb
Desulfurization	6'L x 10''W x 25'H, 30,000 lb
Electrical Balance Of Plant (3 Pcs. Total weight of all 3)	8'L x 40'W x 10.5'H, 75,000 lb
DFC Module (Quantity 2 weight each module)	16.5'L x 12'W x 13.25'H; 110,000 lb
Overall Plot Plan Dimensions (Without Maintenance Access)	60' x 55'
Power Output, ISO conditions	
Power @ Plant Rating, kW	2400
Standard Output Voltage Volts	13,800
Standard Frequency, Hz	60
Optional Output Voltages, V	1270,4160
Optional Output Frequency Hz	50
Efficiency at Rated Output at ISO conditions	
LHV Efficiency, percent (see Note 1)	47 +-2% [1]
Fuel Consumption at Rated Output	
Natural gas (at 930 Btu/ft³), scfm	312
Heat Rate, BTU/kWh (LHV)	7,620
Water Consumption at Rated Output	
Average, gallons per minute	7.0
Peak during WTS backflush, gpm	30
Water Discharge at Rated Output	
Average, gallons per minute	3.5
Peak during WTS backflush, gpm	30
Available Heat at Rated Power	
Exhaust Temperature deg F	650
Exhaust Flow lb/h	27,500
Allowable Backpressure iwc	5
Noise (see Note 2)	72dB(A) at 10 feet [2]
Emissions	
NOx, lb/MWh	0.02
SOx, lb/MWh	0.001
CO, lb/MWh	0.10

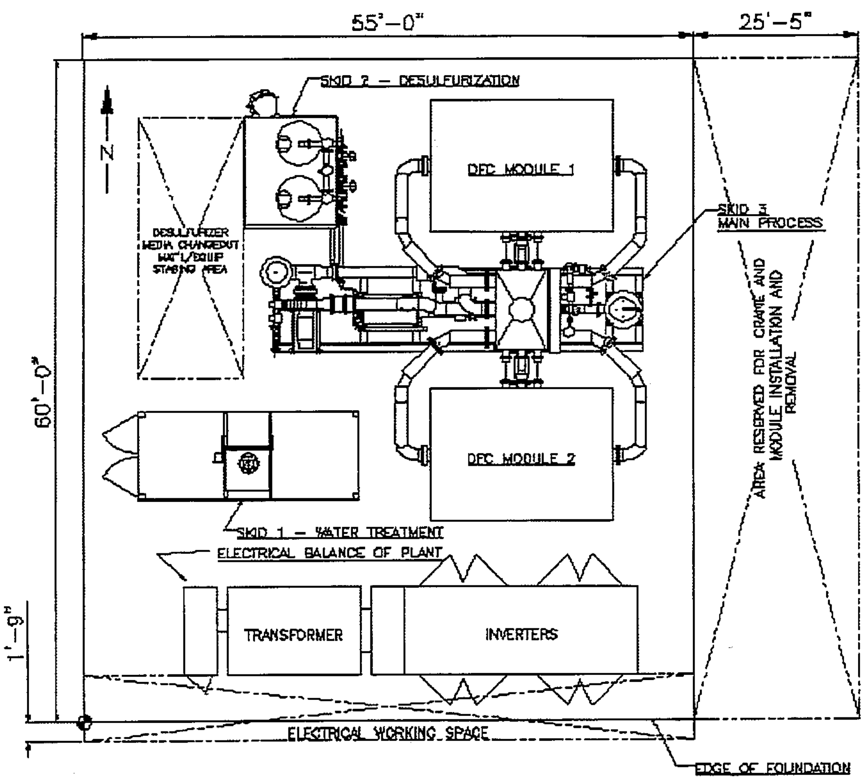
Notes:
(1) Efficiency at acceptance shall be based on on-board instrumentation. Performance testing with additional high accuracy instrumentation is available for an additional fee. Power output and efficiency are subject to ISO correction according to FCE document # 5841. Efficiency value is based upon natural gas fuel meeting FCE's fuel specification. Fuel composition or ambient condition changes after acceptance testing may affect performance as described in the FCE Fuel Specification document # 5665 Revision B.

(2) Noise specified is estimated noise level 10 from plant perimeter in free field. Specific site conditions, such as proximity to other structures or equipment, will impact actual noise level at site.

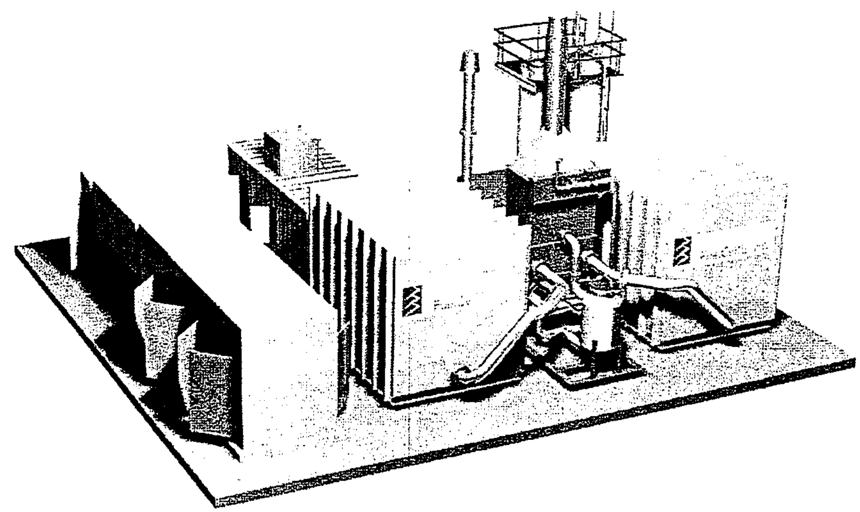
The power plant is configured as multiple skids. These skids are: two Fuel Cell Power Modules, Electrical Balance of Plant (3 piece), Desulfurizer Skid, Water Treatment System Skid and the Main Process Skid. The Fuel Cell Power Modules generate the DC power. The Electrical Balance of Plant converts the power to high quality AC power. The Desulfurizer and the Main Process skids clean and prepare process gas streams for the Fuel Cell Power Module and the Water Treatment Skid makes and stores the process water.

FuelCell Energy **DFC®3000**

EQUIPMENT PLOT PLAN AND UTILITY INTERFACE



FuelCell Energy



Direct FuelCell®
DFC®3000
2400 kW 13.8kV
2667 kVA 50 or 60 Hz

The DFC3000 power plant is a complete natural-gas-to-high-quality AC electric power generating system. It consists of six matched modular skids, assembled at the site into a complete power plant. Each DFC3000 is covered under FCE's standard warranty.

DFC® DFC3000™
STANDARD POWERPLANT SPECIFICATION SUMMARY

July 2006

FuelCell Energy, Inc.
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Danbury, CT 06813
rlevine@fce.com

Information in this document is based on current engineering status and is subject to change without notice.

1.0 INTRODUCTION

This document summarizes specifications of the standard DFC3000™ Direct FuelCell® (DFC®) powerplant. The DFC3000™ is capable of providing high quality baseload electric power gas using an efficient, environmentally clean fuel cell technology. The powerplant is designed to operate on natural gas and anaerobic digester gas (w/auxiliary equipment) as the fuel source. The powerplant consists of multiple skids classified into three major subsystems (as shown in Figure 1), these subsystems are as follows:

- **Mechanical Balance of Plant (MBOP):** The MBOP is comprised of three separate skids; the Desulfurization skid, the Main Process skid, and the Water Treatment System (WTS) skid. The MBOP supplies fresh air, cleans and heats fuel and water, and includes the powerplant control system.
- **DFC® Module:** The DFC3000™ powerplant includes two DFC® Modules. Each DFC® Module contains four fuel cell stacks. The DFC module performs the electrochemical conversion of the continuous fuel supply into DC electric power.
- **Electrical Balance of Plant (EBOP)**: The EBOP is comprised of multiple skids; it includes an inverter, a transformer and a switchgear section. The EBOP converts the fuel cell DC power into utility grade AC power.

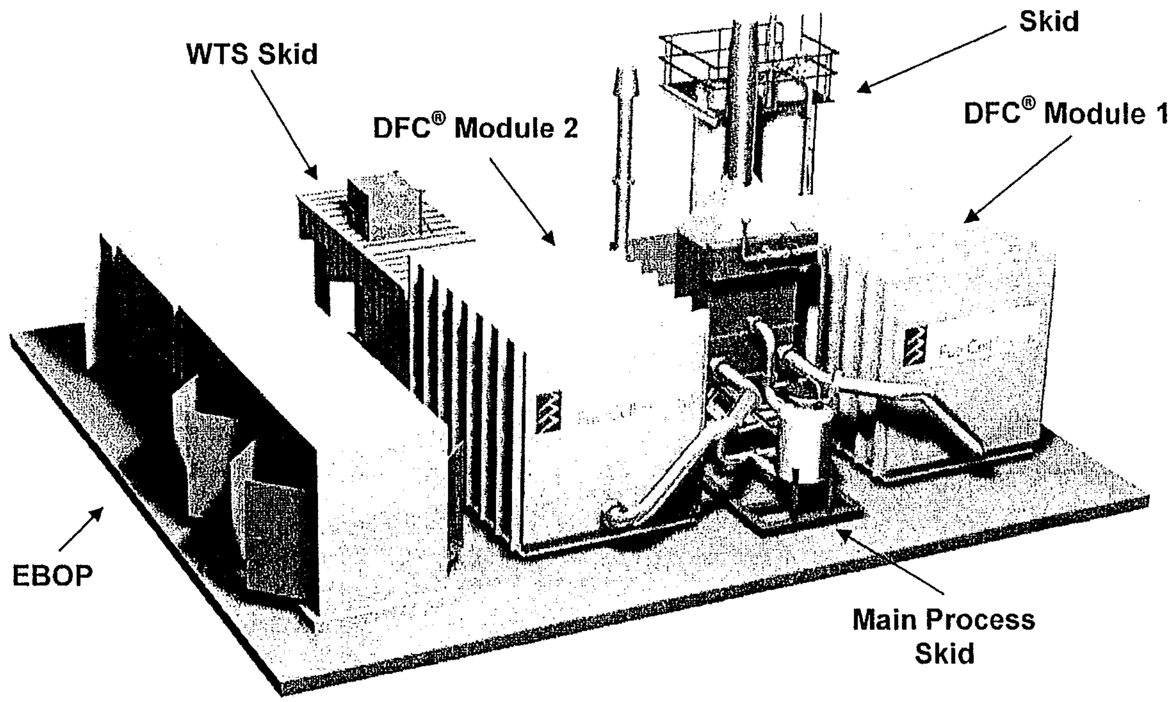


Figure 1
DFC3000™ Powerplant

This latest model of the DFC3000™ powerplant has been improved to increase electrical output and incorporate recent product enhancements that have been applied to the DFC1500MA™ and DFC300MA™ products. It has been designed for installation at a wide variety of sites including industrial, commercial, and institutional areas. The modular design allows for multiple units to be combined, providing incremental capabilities.

The Stack Modules, WTS Skid, Main Process Skid, Desulfurization Skid, and EBOP are provided as factory assembled units which are interconnected at the site (see section 2.6 for Scope of Supply.) The systems have been built to general industry standards as well as standards that have been developed for the fuel cell industry.

The DFC3000™ powerplant will be certified to the following standards:

- CSA-FC1 Standard for Fuel Cell Powerplants
- UL 1741 Standard for Power Conversion Systems
- California Rule 21
- CARB 07 "Standard for Distributed Generation Unit Emissions (CCR 94200-94214) for Operation on Natural Gas"

The powerplant complies with the following standards:

- IEEE 1547
- NFPA 70 (National Electric Code)
- NFPA 853 Standard for Installation of Fuel Cell Powerplants
- ASME piping and vessel codes, as applicable per process conditions
- OSHA General Industry Standards – 29 CFR Part 1910

2.0 PLANT PERFORMANCE AND OPERABILITY CRITERIA

2.1 Overall Design Criteria and Specifications:

Table 1 summarizes the nominal specifications of the powerplant

Table 1, Plant Specifications

Dimensions and Weights	
Water Treatment Skid	20'L x 8'W x 9.5'H, 35,000 lb
Main Process Skid	35"L x 7.5'W x 30'H; 45,000 lb
Desulfurization	8'L x 10"W x 25'H; 30,000 lb
Electrical Balance Of Plant (3 Pcs, Total weight of all 3)	8'L x 40"W x 10.5'H; 75,000 lb
DFC Module (Quantity 2, weight each module)	16.5'L x 12"W x 13.25'H; 110,000 lb
Overall Plot Plan Dimensions (Without Maintenance Access)	60' x 55'
Power Output, ISO conditions	
Power @ Plant Rating, kW	2400
Standard Output Voltage, Volts	13,800
Standard Frequency, Hz	60
Optional Output Voltages, V	1270,4160
Optional Output Frequency, Hz	50
Efficiency at Rated Output at ISO conditions	
LHV Efficiency, percent (see Note 1)	47 +/-2% [1]
Fuel Consumption at Rated Output	
Natural gas (at 930 Btu/ft^3), scfm	312
Heat Rate, BTU/kWh (LHV)	7,620
Water Consumption at Rated Output	
Average, gallons per minute	7.0
Peak during WTS backflush, gpm	30
Water Discharge at Rated Output	
Average, gallons per minute	3.5
Peak during WTS backflush, gpm	30
Available Heat at Rated Power	
Exhaust Temperature, deg F	650
Exhaust Flow, lb/h	27,500
Allowable Backpressure, iwc	5
Noise (see Note 2)	72dB(A) at 10 feet [2]
Emissions	
NOx, lb/MWh	0.02
SOx, lb/MWh	0.001
CO, lb/MWh	0.10

Notes:

(1) Efficiency at acceptance shall be based on on-board instrumentation. Performance testing with additional high accuracy instrumentation is available for an additional fee. Power output and efficiency are subject to ISO correction according to FCE document # 5841. Efficiency value is based upon natural gas fuel meeting FCE's fuel specification. Fuel composition or ambient condition changes after acceptance testing may affect performance as described in the FCE Fuel Specification document # 5665 Revision B.

(2) Noise specified is estimated noise level 10' from plant perimeter in free field. Specific site conditions, such as proximity to other structures or equipment, will impact actual noise level at site.

2.2 General Operability Criteria

2.2.1 Plant Control:

The plant is designed for unattended operation with local and remote dispatching/control. The unit has a local control panel that displays basic operating information (see below) and provides inputs for selecting desired power output level or mode transition.

2.2.2 Operating Modes:

Heatup
Plant is heating up through various stages from ambient to full temperature.

Cooldown
Plant is cooling down through various stages from ambient to full temperature.

Hot Standby
Plant at temperature needed to initiate power generation.

Grid Connected Power Operation
Plant Power Conditioning Unit is synchronized to the utility grid and is exporting power as determined by plant operating settings.

Grid Independent Power Operation
Plant is disconnected from the utility grid and is supplying local loads.

Island Hot Standby
Plant is operating in Grid Independent Power Operation mode but is only supplying its own parasitic loads.

The DFC3000™ plant is not capable of black start.

2.3 Plant and Subsystem Operation

The design life target for the overall plant is 20 years, assuming appropriate maintenance and component replacement. The current fuel cell stack has a replacement schedule of 25,000 hours[1]. During operation of these stacks, performance gradually decreases; this performance degradation results in a loss of efficiency and power output each of approximately 10% over the life of the stack. Operation of the stacks beyond these lifetime windows may be possible, but at restricted power output and lower efficiency.

[1] "Hours", as referred to here, implies hours of fuel cell operation above 900°F.

2.4 Operation and Maintenance Requirements

The DFC3000™ powerplant will require periodic replacement of the following equipment and consumables:

- Fuel cell stacks, as discussed in section 2.3 (also see section 2.5.1)
- Water treatment chemicals and components
- Sulfur sorbent (fuel cleanup)
- Bottled Nitrogen
- Preconverter catalysts
- Miscellaneous materials for normal Operation and Maintenance (O&M) of the plant (including filters, lube oil, etc)

The estimated initial quantities and annual consumption rates of major catalysts and chemicals for the DFC3000™ powerplant are listed in Table 2.

Table 2
Catalysts and Chemicals Summary

ITEM	INITIAL AMOUNT	SERVICE LIFE
Fuel Preparation		
Sulfur Sorbent	350 ft^3	6 months – 2 years (2)
Preconverter Catalyst	20 ft^3	3 years
De-Oxidizer Catalyst (1)	9 ft^3	3 years
CO Polisher	Packaged Unit	3 years
Water Treatment		
Anti-scalant	Inlet water quality dependent	Inlet water quality dependent

Notes:
(1) Required for peak shave gas option only
(2) At 100% capacity, dependent on type of odorant in natural gas

Labor requirements for O&M are expected to be limited to labor to replace these consumables and periodic checks of the plant.

2.5 Installation and Site Issues

The powerplant is designed for installation in a wide variety of sites, with a range of conditions. Sites that have conditions other than those described below may require modifications and/or additional equipment. The following subsections discuss the modularization, transportation, and site issues.

2.5.1 Installation and Access

The design of the plant facilitates rapid installation at the plant site. Prime consideration has been given to minimizing skid size while providing access to critical plant components for inspection and maintenance work (such as catalyst / sorbent replacement, valve maintenance, filter change out, etc.) The DFC3000™ powerplant is shipped in modular sections which have been designed to be easily transported. The powerplant is comprised of multiple skids. On arrival at the plant site, the equipment is typically positioned directly on a foundation. Installation of gas, water, and electrical wiring to the buyer's system is then completed. Piping connections between the mechanical equipment and Stack Module are also completed at this time.

Figure 2 shows a plan view of the assembled powerplant. The overall size of the plant is 60 feet by 55 feet. During plant installation and stack replacement, a 26 foot space needs to be provided along the long dimension of the plant to site a crane for lifting the stack modules and mechanical skids.

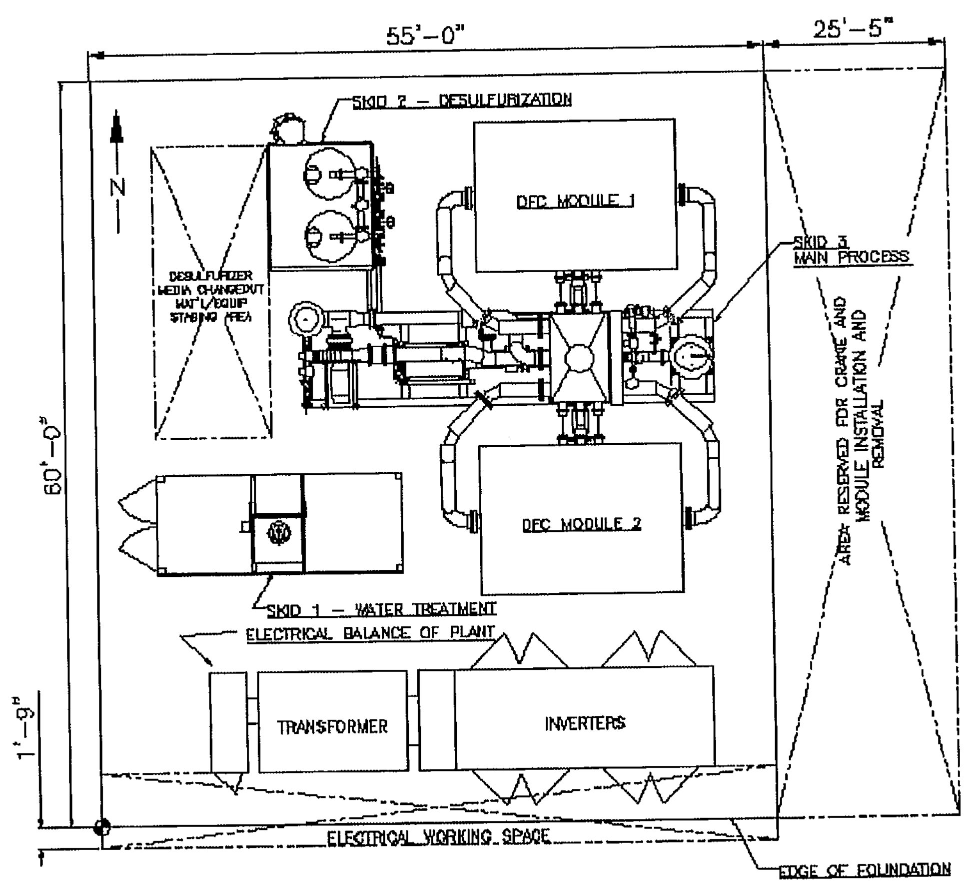


Figure 2: Powerplant Plan View

2.5.2 Site Conditions

The powerplant is designed for outdoor installation (indoor installation is possible with appropriate ventilation provisions.) Site and ambient design conditions for the plant are listed in Table 3. These conditions have been developed to allow the plant to be installed at most sites around the world. The "design conditions" data refer to the range of conditions under which the standard plant is designed to operate. Host sites with ambient conditions other than those below may require modifications, additional equipment and/or may result in a reduced performance. The "performance point" data refers to the conditions at which the plant will provide its rated output and efficiency.

TABLE 3
SITE DESIGN CONDITIONS(1)

CATEGORY	DESIGN CONDITIONS	PERFORMANCE POINT(2)
Elevation above Sea Level	0 to 5000 ft	0 ft
Ambient Temperature	-20 to 104°F	59°F
Relative Humidity	0 to 100 %	60 %
Direct Solar Radiation	310 BTU/ft^2 (3)	0
Wind Loading @ 33 ft, qz	41 PSF (4)	0
Snow Load, Pf	33 PSF (5)	0
Precipitation	2.5 inches/hour	0
Seismic	IBC2003 Occupancy Category III, Site Class D, S_S=2.5, S_1=1.3, I_E=1.25 I_P=1.0, F_A=1.0, F_V=1.5	
Ambient Dust Loading, Ave./yr	27 micro-gram/m^3	
Average Annual Airborne Gaseous Halide, Hypochlorite, or Halogen Concentration, Ave./yr	< 20 ppbv	
Average Annual Airborne Gaseous Sulfur Dioxide Concentration in Air	< 10 ppbv	

Notes:
(1) Highway access is required. Rail siding is not required.
(2) Basis for DFC3000™ powerplant performance calculations. Operation within the "design conditions" range but away from the performance point (ISO conditions) may require correction of output and efficiency.
(3) Normal to the sun's rays at 36° N latitude for an atmospheric clearness number of unity.
(4) This wind load of 41 PSF is based on a wind speed of less than 130 mph and Exposure C with Iw=1.15, Kz=0.98 Ktz=1 and Kd=0.85. Exposure C is defined as "Open terrain with scattered obstructions having height generally less than 30 feet" (American Society of Civil Engineers standard ASCE 7-95).
(5) This snow load is equivalent to a ground snow load of 40 PSF with Is=1.1 and a snow exposure factor of Ce=0.9 and Ct=1.2 per ASCE 7-02.

2.5.3 Plant / Site Interfaces

The plant is designed for the following interconnections at the plant boundary limit:

- Main power connection
- Optional Customer Critical Bus (CCB) power connection
- Pipeline natural gas supply
- Municipal quality potable water supply
- Water discharge from water purification system
- Flue gas discharge to external Heat Recovery Equipment (supplied by others)
- Nitrogen gas supply

The plant also includes connections for telephone and/or high speed data lines. These lines can be used for interconnection of the controller and fire alarm control panel with the buyer's control center, dispatch facility, local fire department, FCE, etc.

A connection to the electric grid is also required. Whenever the fuel cell is not generating power (such as during plant startup and shutdown), electric power for the plant auxiliaries will be back fed from the electric grid. During heatup the powerplant will draw up to 115 kW power for BOP loads. Average power use during the 72 hour heatup will be approx. 110 kW. Natural gas use up to 205 scfm, averaging approx. 90 scfm over the 72 hour heatup .

2.5.3.1 Fuel Quality Requirements

The plant is designed to operate with natural gas or anaerobic digester gas that meets the criteria listed in FCE specification 5665. Operation with oxygen containing peak shave or anaerobic digester gas requires additional equipment.

2.5.3.2 Water Quality Requirements

The plant is designed to operate on a variety of different water sources including most municipal and some well and surface water supplies. The FCE Water Specification 5680 provides water quality requirements for powerplant feed water. Water quality outside the ranges specified in this document may require more frequent maintenance intervals or additional treatment equipment.

2.5.3.3 Powerplant Performance Correction to ISO conditions

As noted above, the power output and efficiency basis is ISO standard conditions. Correction of power output to ISO conditions for operation at non-ISO conditions is done per FCE Specification 9284.

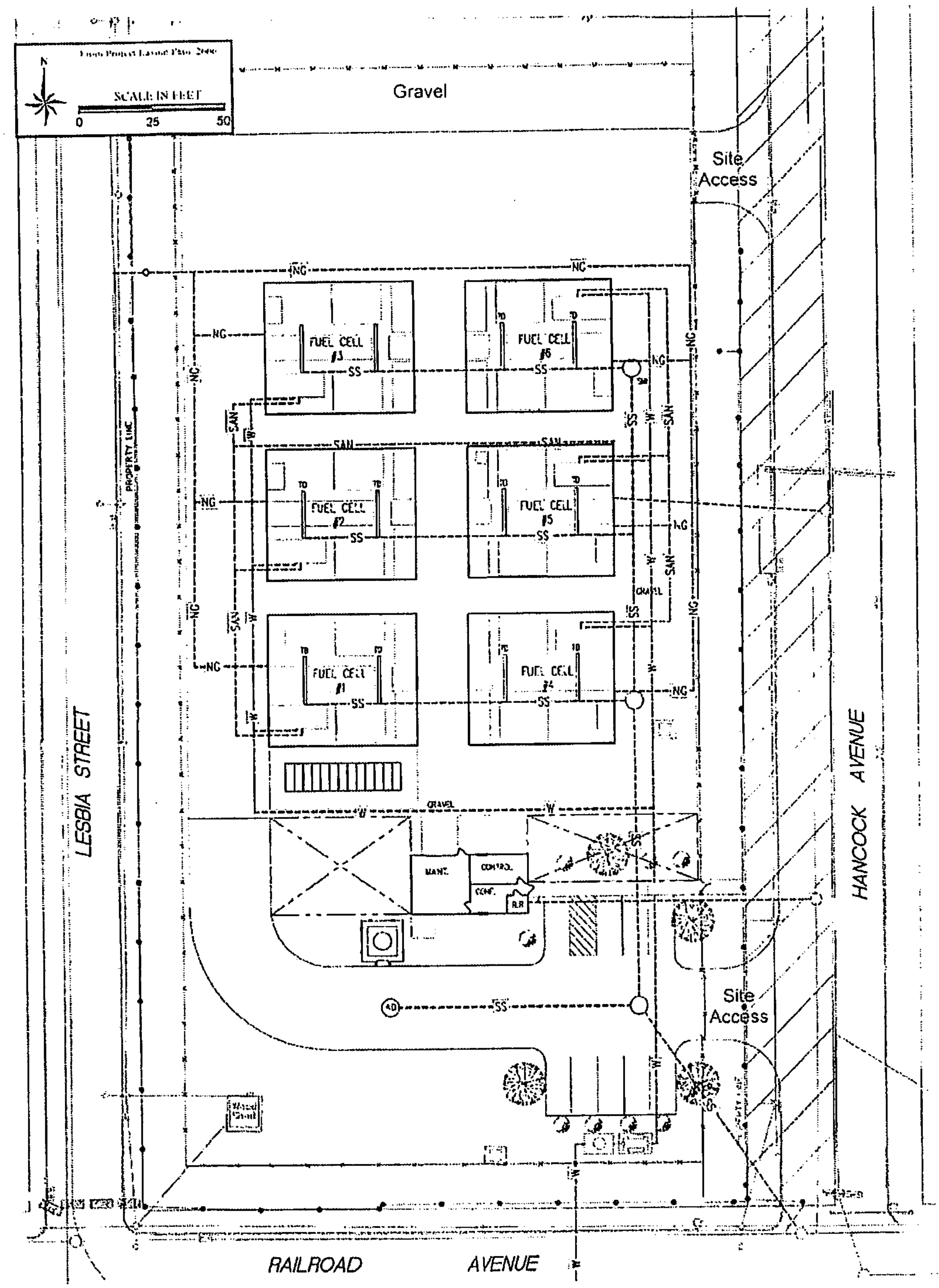
2.6 Powerplant Scope of Supply for FCE and Customer

FCE Scope of Supply:

- Power plant system, comprised of
  - Mechanical equipment skids, including fuel heatup and treatment, water treatment, and control equipment
  - EBOP electrical balance of plant skid, including DC to AC power conversion equipment
  - (2) 1.2MW Fuel Cell Modules
  - Interconnecting piping and insulation between mechanical skids and the Fuel Cell Modules
  - Ship loose components, such as exhaust stack, HVAC units, etc
  - First fill catalyst materials (provided by FCE separately from BOP per DOT requirements)
- Customer documentation package (drawings, specifications, manuals).
- Installation Consulting (as defined by contract)
- Checkout, Commissioning, and initial startup.
- Standard Warranty
- Acceptance Testing (as defined by contract).

Customer Scope of Supply

- Local, state, or federal permits
- Utility interconnect agreements
- Fuel and water quality testing
- Power sale or fuel supply agreements
- All site design, preparation, and civil work including but not limited to soil testing, grading, foundations, foundation bolts, grounding grid, road access, fencing, and equipment lay down area
- Supply of utilities, including start-up power, fuel supply, water supply, wastewater discharge, nitrogen cylinders (usually leased locally), calibration gas, communications and electrical interconnections
- Shipping and Insurance
- Rigging, loading and unloading of equipment from transport vehicles
- Installation at jobsite, including setting on foundations, installation of interconnect piping and ship loose components
- Materials and installation of power and control cabling between skids
- Installation and Initial fill of FCE-supplied catalyst
- Site lighting, fire protection and suppression, if required
- Site Security
- Emissions monitoring equipment, if needed

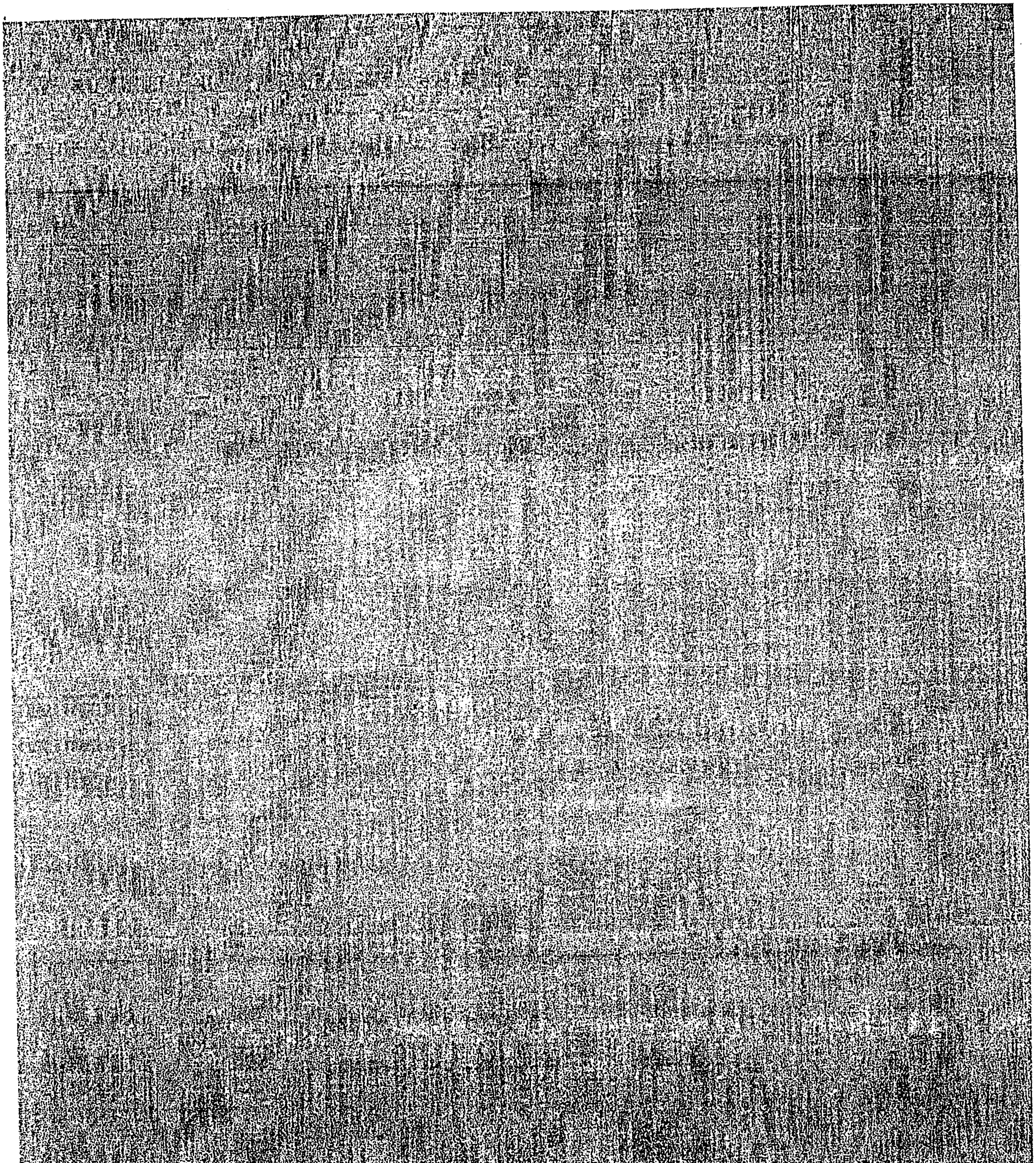


Facility Layout Plan of the Bridgeport Fuel Cell Project

ISO new england

2005

Regional System Plan



ISO New England **Regional System Plan 2005**

The Executive Summary follows.
The attached CD contains the full report.

Approved by the ISO New England Board of Directors

October 20, 2005

Executive Summary

ISO New England has completed its 2005 Regional System Plan (RSP05) for New England's electric power system and presents the results in this report. This Executive Summary highlights the major results of the 10-year plan and summarizes the ISO's conclusions and recommendations for the future development of the bulk power system.

RSP05 identifies system improvements needed over the next 10 years and provides information on what infrastructure improvements are needed and when and where they are needed to meet the system's peak demands in conformance with planning criteria. Plans for the region's future electricity infrastructure must account for the uncertainty of assumptions over the next 10 years in terms of load growth, fuel prices, new technology, market changes, environmental requirements, and other relevant events. As with previous planning reports, formerly called Regional Transmission Expansion Plans (RTEPs), RSP05 provides technical information and data on various scenarios and identifies the requirements for maintaining, improving, and ensuring the reliability of the system in the short term. The plan also assists in linking physical system needs to wholesale market mechanisms aimed at attracting market solutions (generation, demand response, etc.) to mitigate these needs. RSP05 thus is a broader plan of the region's electricity system needs than the previous RTEP reports.

RSP05 resource adequacy studies are consistent with previous RTEP findings that indicated the need for significant new generation or demand-side resources in New England in the 2008 to 2010 timeframe. Key findings of RSP05 are as follows:

- RSP05 identifies 272 transmission projects required for the reliability of the New England system. Previous RTEP reports emphasized the major 345 kV projects. RSP05 reinforces the need for the major 345 kV projects and places greater emphasis on the need for transmission projects throughout the system, particularly within load pockets.[1]

- Under high-demand conditions, New England will more likely be forced to operate under emergency conditions as soon as 2006 due to resource limitations in the Connecticut (CT), Southwest Connecticut (SWCT), and Norwalk/Stamford Subareas (NOR).[2]

- From a systemwide perspective, installed capacity (IC) projections show that additional resources are needed to meet systemwide demand as early as 2008 but no later than 2010.

[1] Load pockets are areas of the system where the transmission capability is not adequate to import capacity from other parts of the system, and load must rely on local generation.

[2] To conduct resource planning reliability studies within New England, the region is modeled as 13 subareas and three neighboring control areas. In addition to SWCT, NOR, and CT, these subareas include northeastern Maine (BHE); western and central Maine/Saco Valley, New Hampshire (ME); southeastern Maine (SME); northern, eastern, and central New Hampshire/eastern Vermont and southwestern Maine (NH); Vermont/southwestern New Hampshire (VT); Greater Boston, including the North Shore (BOSTON); central Massachusetts/northeastern Massachusetts (CMA/NEMA); western Massachusetts (WMA); southeastern Massachusetts/Newport, Rhode Island (SEMA); and Rhode Island bordering Massachusetts (RI). Greater Connecticut includes the CT, SWCT, and NOR Subareas. Greater Southwest Connecticut is comprised of the SWCT and NOR Subareas. The three neighboring control areas are New York, Hydro-Québec, and the Maritimes.

- Analysis of operating reserves shows the immediate need for approximately 1,100 megawatts (MW) of incremental quick-start resources or units with competitive energy prices in BOSTON and Greater Connecticut, especially in Greater Southwest Connecticut.[3] Adding 530 MW (of the 1,070 MW) in Greater Connecticut will meet this area's capacity needs and also serve to meet systemwide needs.

- The region must convert 400 MW of gas-fired generation to dual-fuel capability (i.e., having the flexibility and storage capacity to use oil as well as gas) by winter 2006/2007 and increase that capability by 250 MW per year through winter 2008/2009 and 500 MW more in winter 2009/2010.

Introduction to ISO New England

ISO New England is a not-for-profit corporation created in 1997. It is responsible for operating New England's bulk power generation and transmission system, overseeing and administering the region's wholesale electricity markets, and managing the regional bulk power system planning process. In February 2005, the ISO began operating as a Regional Transmission Organization (RTO). The ISO is submitting RSP05 in compliance with its Federal Energy Regulatory Commission (FERC)-approved tariff, *Electric Tariff No. 3, ISO New England Inc. Transmission, Markets, and Service Tariff*.[4] In addition to complying with federal regulations, the ISO works closely with state regulators and stakeholders, including participants in the marketplace, to carry out each of its functions.

The six-state New England electric power system serves 14 million people living in a 68,000 square-mile area. The system is fully integrated, using all regional generating resources across state boundaries. Over 350 generating units produce electricity, representing approximately 31,000 MW of generating capacity, connected to approximately 8,000 miles of high-voltage transmission lines. Most of these lines are fairly short and networked as a grid, resulting in close interrelationships of electrical performance in all corners of the system. Twelve transmission ties interconnect New England with neighboring electricity systems in the United States and Canada, including New York, New Brunswick, and Québec; these lines carry power into or out of New England depending on system needs.

Approach to Planning

RSP05 is a comprehensive assessment of the needs for producing and transmitting power in New England. Studies conducted for RSP05 projected energy use and load growth and analyzed the adequacy of installed and operable capacity in New England in terms of the amount and types of resources needed and when and where they will be needed to ensure the reliability of the system. It examined the need for additional dual-fuel capability and where such additions are needed. The ISO also simulated future air emissions from the region's generators and compiled information related to a potential regional carbon dioxide (CO_2) emission cap and other environmental regulations. Additionally, studies were conducted with the transmission owners to evaluate transmission system improvements needed for satisfying reliability requirements throughout New England. These studies identify major transmission upgrades as well as other required improvements. The ISO also examined system conditions to identify transmission improvements for enhancing market efficiency.

[3] Quick-start capacity is typically comprised of pumped storage and conventional hydro units, combustion turbines, many load-response (i.e., load-reduction) program resources, and internal combustion units that can start up and be at full load in less than 30 minutes. These units provide greater operating flexibility in daily operations and in emergency situations than base-load generators, which are available at all times to serve load, or generators that are available to serve intermediate load levels. In daily operations, quick-start resources can help replenish the capacity lost due to a sudden and unexpected loss of a generating unit or transmission facility. Under severe peak-load conditions, quick-start units can help avoid the need to implement involuntary load shedding by providing either energy or operating reserves.

[4] See <http://www.iso-ne.com/regulatory/tariff/index.html>.

As part of the RSP05 effort, the ISO consulted with stakeholders about numerous topics, including analysis of data trends, possible future developments, and options related to the region's short- and long-term electricity supply. The ISO met with the Planning Advisory Committee (PAC) eight times in 2005 to fully review RSP05 assumptions and study results. The PAC consists of participants in the electricity markets, transmission owners, representatives from government agencies, and consultants. The transmission projects are the result of an ongoing planning process among the ISO and New England transmission owners. This open stakeholder process has provided benefits to regional planning in terms of study priority, scope, and quality.

The ISO also fully participates with its neighboring electric power system control areas as well as interregional planning bodies, including the Northeast Power Coordinating Council (NPCC) and the North American Electric Reliability Council (NERC), to ensure the reliability and security of the wide-scale electric power system.[5] The ISO complies with all the NERC planning criteria and procedures (as well as all internal planning procedures) to enhance resource adequacy and transmission performance and to better coordinate the development of the interconnected power system in the Northeast.[6]

During 2004, the ISO signed the Northeast Planning Protocol, an agreement among ISO New England, the New York ISO (NYISO), and PJM Interconnection that commits the ISO and these transmission providers to cooperate in interregional planning studies.[7] The neighboring Canadian provinces participate on a limited basis to share data and exchange information. This overall cooperation is needed to improve the overall reliable and efficient operation of the electric power system in the northeastern United States and these provinces and to minimize interregional reliability problems. The protocol specifically aims to resolve interregional planning issues and identify the impacts that proposed generating units and transmission projects could have on neighboring systems. Additionally, the ISO participates in planning studies to ensure that contingencies in New England will not adversely affect neighboring systems.

Collectively, the results of the RSP05 studies, data gathering, and interregional coordinated study efforts provide the ISO with the information it needs to create system plans that market participants can use to develop market solutions or transmission improvements to meet system needs. The studies conducted are summarized below.

Projected Energy Use and Load-Growth Studies

To estimate demand, the ISO conducted energy and load-growth studies that forecasted energy and peak loads for 2005 to 2014. These forecasts considered data on historical demand, economic and demographic factors, weather, and projected reductions in energy use and peak loads based on conservation efforts and peak-load management (C&LM) programs. The analyses use data on "50/50" and "90/10" peak loads in New England. A 50/50 peak load has a 50% chance of being exceeded due to weather conditions, while a 90/10 peak load has a 10% chance of being exceeded due to weather conditions.[8]

[5] NPCC defines control areas as electric systems bounded by interconnection metering and telemetry that can control generation to maintain a net interchange schedule with other control areas and contribute to the frequency regulation of the interconnection. For further information, see <http://www.npcc.org/default.asp>. Also see <http://www.nerc.com/>.

[6] For more information on the ISO's planning procedures, see <http://www.iso-ne.com/rules_proceds/isone_plan/index.html>.

[7] PJM is the RTO for all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, and the District of Columbia.

[8] In the past 10 years, New England has exceeded the 90/10 peak load forecast under hot and humid weather conditions four times.

Resource Adequacy Studies

ISO New England relies on several types of studies to identify the resources required to meet future system reliability needs. The two frequently used studies are the installed capacity analysis and the operable capacity (OC) analysis. The IC analysis uses a well-established probabilistic method for determining the resources needed to meet a loss-of-load-expectation (LOLE) criterion that prevents the system from disconnecting firm load for a range of possible load levels and resource availabilities. The operable capacity analysis uses a deterministic method for identifying the amount of capacity needed to be operable to meet a specified peak load level including operating reserves. The OC analysis methodology is very similar to the approach system operators use to identify the resources needed on a daily basis to meet the expected peak-load conditions. Thus, installed capacity studies identify bulk power system reliability issues related to the adequacy of system resources, and operable capacity analyses identify reliability issues related to system security.[9]

Installed Capacity Analysis

When planning the generation system, ISO New England conducts an installed capacity analysis to identify an IC Requirement, or the adequacy of New England system resources and the amount of resources needed to meet an NPCC and ISO New England LOLE criterion.[10] To meet this criterion, the ISO must plan and install adequate resources for the New England bulk power system so that the probability of disconnecting firm customers due to resource deficiency will be no more than 1 day in 10 years.

The LOLE criterion has been used to determine New England's IC Requirement since 1971 when the New England Power Pool (NEPOOL) was charged to conduct regional planning.[11] This calculation assumes that no transmission constraints exist within New England so that all generating resources in the region are available to all loads. Other critical assumptions are as follows:

- The load forecast is modeled as a probability distribution of the weekday peak loads that accounts for the effects of weather uncertainty.
- The availability of resources is modeled based on the probability of forced outages.
- The transmission system can be operated reliably when systemwide operating reserves have been fully depleted.
- No generating units will be added or removed from the system during the assessment period.
- To meet emergency needs throughout the assessment period, New England can rely on 2,000 MW of uncontracted or otherwise unscheduled capacity (called tie benefits) from New York, Québec, and the Maritimes to meet needs.

[9] Reliability adequacy is a measure of the reliability of the bulk power system to meet demand and the sufficiency of the system's generating resources. Reliability security is a measure of the reliability of the bulk power system in terms of its ability to withstand disturbances arising within the system.

[10] Additional information on NPCC planning criteria can be found at: <http://www.npcc.org/criteria.asp>.

[11] NEPOOL was formed in 1971 by the region's private and municipal utilities to foster cooperation and coordination among the utilities in the six-state region and ensure a dependable supply of electricity. Today, NEPOOL members are ISO New England stakeholders and market participants. Over the next 18 months, the New England system stakeholders will review the methodology that calculates the IC Requirement.

- All ISO New England emergency actions per Operating Procedure No. 4, *Actions during a Capacity Deficiency* (OP 4), will be fully available during a capacity deficiency.[12]

Using this methodology and these assumptions result in identifying the minimum amount of capacity needed to meet the LOLE criterion. This is because these assumptions do not take into account the following risks, which, if present, would increase the IC Requirement:

- The New England transmission system may not be able to simultaneously transfer to load the full output from all of New England's generators. For example, Greater Connecticut is transmission limited, and power cannot always reliably or securely flow from a generator within that area to the load there. Also, the Maine–New Hampshire interface limits the receipt of generation output from Maine, including transfers from New Brunswick into New England.

- As shown by operating experience, transmission security (first- and second-contingency protection for thermal overloads, voltage collapse, and generator instability) cannot be maintained when New England-wide operating reserves do not meet the requirements stated in ISO New England Operating Procedure No. 8, *Operating Reserve and Automatic Generation Control* (OP 8).[13, 14]

- The ability of neighboring systems to supply emergency power may well diminish, as neighboring regions experience load growth that exceeds generation additions, and the reserve supplies in these regions decrease. The future ability to simultaneously import a total of 2,000 MW of uncontracted emergency assistance from Hydro-Québec, the Maritimes, and New York is uncertain. By 2008, New York is projected to run short of the installed capacity its criteria require. Ontario is also projected to be short of capacity resources within five years and will be facing additional governmental plans to phase out 6,500 MW of coal plants and acquire replacement resources within the same period. Since New England currently relies on 2,000 MW of tie benefits from other control areas, the projected resource adequacy of the surrounding NPCC systems is of great importance to New England. The projected capacity situation for the neighboring NPCC control areas coupled with transmission limitations shows that New England should not heavily rely on neighboring systems for capacity during periods of peak load, especially during the latter part of the planning period.

- While over 1,700 MW of New England generating capacity has been retired since 1999, RSP05 assumes no additional generators will retire during the 10-year planning period.

[12] Under OP 4 conditions, the system operator must take special steps to prevent curtailment of firm customer load. These actions include reducing operating reserves, reducing voltages, importing emergency power, activating emergency demand response to make capacity available, and taking other emergency measures while still maintaining transmission system reliability. See <http://www.iso-ne.com/rules_proceds/operating/isone/op4/index.html>.

[13] The first contingency is the loss of the first facility that has the largest impact on system reliability. The second contingency is the loss of the next facility, which would then have the largest impact on the system.

[14] For more information on OP 8, see <http://www.iso-ne.com/rules_proceds/operating/isone/op8/index.html>.

Operable Capacity Analysis

IC Requirement analyses do not identify the amount of resources that must be operational to meet a defined load level plus the requirements for operating reserves. Thus, to assess the ISO's operational risks and identify the amount of generating resources that must be operational to meet expected load and operating-reserve requirements, as well as the sensitivity of day-to-day system reliability and security to these risks at some point in the future, RSP05 complements the IC Requirement analysis with an operable capacity analysis. This is a deterministic analysis that reviews the ability of the bulk power system to serve load using a specific scenario. This approach compares the expected peak loads plus the requirements for reserve capacity to the amount of operable capacity the system is expected to have available during these peak loads. An adequate operable capacity margin maintains sufficient capacity resources to serve the native load and meet NERC and NPCC operating criteria (for operating reserves and transmission security) for the peak hour of each year, while recognizing the physical nature of the transmission system and the amount of capacity historically unavailable due to random forced outages on that peak day.[15] The operable capacity analysis considers both the 50/50 and 90/10 peak-load levels.

Fuel Diversity and Other Issues

RSP05 discusses the short- and long-term issues of fuel diversity. The short-term issues relate to a large portion of the gas-fired generating units lacking either firm gas contracts or dual-fuel capability to mitigate possible shortages of natural gas during periods of extreme winter weather. The longer-term issues relate to the ever-increasing reliance on natural gas in New England and neighboring regions and the need for more supply-side fuel diversity. The report discusses New England's winter capacity mix of fuels. It also summarizes a probabilistic study that investigated the physical risks related to winter gas-fired capacity and the amounts of dual-fuel conversions that could mitigate those risks. The report provides recommendations for encouraging dual-fuel capability and new energy resources.

RSP05 contains environmental information that can assist market participants in determining the types, amounts, and locations of resources they might find attractive for development. This includes analysis of future air emissions, the status of Renewable Portfolio Standards (RPS), and discussions of distributed resources including demand-response resources.[16] The report also presents the status of proposed generating projects in the ISO Interconnection Study Queue.

Transmission Studies

RSP05 summarizes the status of a number of transmission planning studies that aim to identify needed transmission facilities. Two studies that have a significant impact on RSP05 results have focused on reliability issues in southern New England and the interface constraints for the Connecticut and Southwest Connecticut imports.

[15] Additional information on NERC and NPCC planning criteria can be found at: <http://www.nerc.com/~filez/criteria-guides.html> and <http://www.npcc.org/criteria.asp>, respectively.

[16] State-mandated Renewable Portfolio Standards generally require competitive retail providers to supply a certain percentage of electricity from various renewable sources and technologies. Distributed resources are a growing form of smaller-sized on-site resources that involve load-reduction technologies or on-site generators. Distributed resources are typically located at or near load centers and are generally installed and owned by commercial or industrial facilities. A facility's use of these resources helps maintain the reliability of its electric supply during grid emergencies. Distributed resources may be installed to serve all or part of a facility's electric load and to provide thermal energy to enhance the economics of its overall energy supply. The ISO's demand-response programs are examples of distributed-resource measures. These programs provide financial incentives to customers that make their distributed-resource capacity available during OP 4 conditions or when wholesale prices are high. Demand response is when customers reduce load based on reliability needs or price signals.

Consistent with transmission reliability requirements, the ISO continues to study the southern New England region to identify and resolve its reliability issues. An overall goal of the study is to formulate a solution that better integrates load-serving and generating facilities within Massachusetts, Rhode Island, and Connecticut, thereby enhancing the grid's ability to move power between east and west and vice versa. The study report is scheduled to be completed by the end of 2005, and the project plan is scheduled for ISO approval by July 2006. The current in-service date for this project is December 2011.

The ISO has determined that the interface limits for the Connecticut and Southwest Connecticut imports have increased over the RTEP04 limits by 100 MW and 300 MW, respectively. This increase results from system improvements that relieved many voltage constraints in those areas. The new higher limits are primarily based on thermal limits, which will be addressed by subsequent projects. While operating practices have validated these study results, the ISO and the NEPOOL Reliability Committee will review the procedures and supporting documentation for establishing interface limits.[17]

RSP05 Findings

RSP05 generated data on future energy use and load growth, installed and operable capacity, and transmission needs. The results of the projected energy use and load-growth analyses conducted in January 2005 indicated that the use of energy in New England is projected to grow by 14% from 2005 to 2014. New Hampshire and Connecticut are projected to be the highest growth states. Greater efforts at conservation could reduce the energy-use growth rate throughout New England.

The summer 50/50 peak load in New England is expected to grow by about 15%, from 26,355 MW in 2005 to 30,180 MW in 2014. The summer 90/10 peak loads also are expected to grow about 15%, from 27,985 MW in 2005 to 32,050 MW in 2014. These projections include about 1,600 MW of peak reduction from ongoing utility-sponsored conservation programs. Due to several economic factors, the RSP05 summer-peak load forecasted for 2014 is about 1,000 MW higher than the RTEP04 peak load forecast for 2013. The preliminary peak load of July 19, 2005, was 26,749 MW, establishing a new all-time system peak for New England 5.5% higher than the previous all-time peak established in 2002. Eight days later on July 27, the system reached another all-time peak of 26,921 MW. This peak load would have been even higher by approximately 200 MW had demand-response measures not been activated in Connecticut under OP 4.

The long-run peak load forecasts in RSP05 assumed a constant load factor, which has been found to be inconsistent with historical data and short-term forecasts and has contributed to the under-forecasting of summer-peak loads. The ISO is in the process of improving its peak-forecast methodology by extending its declining summer-peak load factor over the entire forecast period.

Table ES.1 shows projected resource needs in New England in terms of the amount and types of generating resources needed and where and when these resources will be needed. The table also relates the system needs identified in RSP05 to solutions and requirements. The following sections summarize the findings presented in the table.

[17] For information on the NEPOOL Reliability Committee, see <http://www.iso-ne.com/committees/comm_wkgrps/relblty_comm/index.html>.

TABLE ES.1

Summary of RSP05 System Needs, Solutions, and Requirements Based on RSP05 Assumptions and Analyses

System Need	Solution	Requirement
Meet load-pocket requirements	Add resources to satisfy reliability needs (preferably quick-start resources)	For Greater Connecticut: Operable Capacity: - Need 30 MW by 2006 (90/10 load) - Need 670 MW by 2009 (90/10 load)
Meet systemwide operable capacity forecast requirements	Meet systemwide needs by adding quick-start resources that satisfy load-pocket needs	- Need 160 MW by 2008 (50/50 load) - Need 1,900 MW by 2008 (90/10 load)
Provide operating reserves	Add incremental quick-start resources or units with energy prices competitive with resources external to the load pockets	For Greater Connecticut: - Need 530 MW by 2006 *The preferred location for adding quick-start resources for meeting the needs of Greater Connecticut is Greater SWCT because this area needs 350 MW by 2009* - Need 500 MW in BOSTON by 2006
Meet systemwide 1-day-in-10-year LOLE criterion	Meet systemwide needs by meeting load-pocket needs	- Need 170 MW systemwide by 2010
Reliably operate system when gas is not available	Achieve greater fuel diversity by adding incremental dual-fuel conversions in southern New England, predominantly BOSTON	- Need 400 MW by winter 2006/2007 - Need an additional 250 MW every winter through 2008/2009 - Need an additional 500 MW in winter 2009/2010

Need for Capacity and Operating Reserves in Load Pockets

Among specific subregions, Greater Connecticut has the most significant resource need in New England, coupled with transmission constraints that limit the import of electricity into the state. If additional resources are not added soon, or the transmission lines currently being developed are not completed in a timely manner, these constraints create a significant risk that system operations will be required to shed load or to disconnect firm customers during periods of extremely hot weather and when generating units are less available than expected.

RSP05 results indicate that Greater Connecticut is also short of quick-start generating capacity that provides economical operating-reserve coverage under high-load conditions. Because of this shortage, intermediate units not economic in the energy market must be put on-line (for which the load-serving entities would incur operating-reserve costs) to provide the 30-minute response needed to maintain reliability upon loss of a critical generator or transmission line.[18]

Greater Connecticut currently needs an additional 530 MW of resources that can provide 30-minute response to meet its operating-reserve and second-contingency coverage. Ideally, a majority of these quick-start resources

[18] Operating-reserve costs are payments to generators for operating when it is more expensive for them to do so than the price-setting generator in the energy markets.

would locate in Greater Southwest Connecticut, which would need approximately 350 MW of this type of resource. These resources are needed with the addition of Phase 2 of the Southwest Connecticut Reliability Project, due to be in service in late 2009 and required to reliably serve load in Greater Southwest Connecticut.

BOSTON, another subarea of New England's power system, needs 500 MW of quick-start resources now to reduce out-of-merit commitment of uneconomic generation and provide operating reserves for contingency coverage under high-load conditions. Adding quick-start resources in BOSTON also would serve New England's overall resource adequacy needs and help reduce some of the operating-reserve costs in Boston. Adding quick-start units in the southern part of the New England system would provide for operating flexibility and improve the reliability of operation at critical load centers. As noted below, it is desirable for the units to have dual-fuel capability.

Systemwide Capacity Needs

By 2010, New England will require about 170 MW of capacity to meet the NPCC and ISO New England 1-day-in-10-year LOLE criterion. This calculation assumes no additional units will retire or deactivate by 2010 and load-growth and other assumptions remain appropriate. These results indicate total resource capacity barely meets the reliability requirement today and, as load grows, the need for operation under OP 4 will become more commonplace during high-demand hours.

During times of extreme peak demand, the use of additional capacity over the amount committed to firm contracts or OP 4 actions during emergency conditions may be needed. The fragile state of the transmission system and the lack of sufficient 30-minute-response resources in Connecticut make it especially vulnerable to the risk of unreliable operation or, in extreme conditions, load shedding. Quick-start resources and added diversity in generating-unit types are needed to reduce the operational risks identified.

Based on the results of the operable capacity analysis, by 2008, New England must acquire or rely on OP 4 actions to gain an additional 160 MW and 1,900 MW to meet the 50/50 and 90/10 peak-load forecasts, respectively.

Taken together, the results of the installed and operable capacity analyses demonstrate that New England will likely face an increased risk of operating with less capacity than needed by 2008. The results also show that the region will not have sufficient capacity to meet the IC Requirement in the 2008 to 2010 timeframe, depending on load growth, weather conditions, generator performance and attrition, and the conditions in specific load pockets, such as Connecticut. Because the timeframe for building new generation resources is about two to four years, the analysis highlights the urgent need for new generating resources in New England.

Need for Fuel Diversity

ISO's operating experience and RSP05 highlight a high level of vulnerability to increases in gas and oil prices and the potential for fuel disruptions in that gas and oil fuel plants provide almost two-thirds of the system's capacity. RSP05 identifies that to mitigate the impacts of possible natural gas shortages on system reliability during the winter, the region must convert approximately 400 MW of gas-fired generation to dual-fuel capability by winter 2006/2007, increasing the amount by 250 MW per year through 2008/2009 and by 500 MW for 2009/2010. Alternatively, gas-fired units could contract for firm supply, recognizing that scheduling flexibility may not be available for quick-start units. Study results indicate that converting gas-fired generation in southern New England, particularly in the BOSTON Subarea, to dual-fuel operation would help mitigate reliability concerns. These concerns are associated with a natural gas shortage that could occur during a winter cold snap and a resulting regional gas shortage. Additional dual-fuel capability, an additional firming of contracts, and/or an increase in the natural gas delivery system infrastructure-including new liquid natural gas (LNG) terminals-will be needed to support load growth in the future if gas continues to be a preferred fuel for new generation.

Since approximately 50% of New England's generating capacity is capable of being fueled with natural gas, and gas actually fuels 40% of the region's electrical energy generation, the region must focus on developing greater fuel diversity for its electricity supply for the long term. The fuel-diversity analysis clarified that adding resources, including nuclear-powered capacity, coal units, or renewable resources, will improve reliability in New England. RSP05 determined that energy conservation and peak-load management programs could contribute to decreasing New England's need for capacity in the short term and improve the fuel-diversity situation. The region also has the increased potential for using distributed resources to meet New England's growing demand for electricity.

An increasing energy use and rising natural gas prices relative to oil prices will tend to increase generating plant production by oil units, resulting in higher total air emissions in New England over the 10-year period. Conservation efforts and renewable resources will reduce emissions and encourage greater fuel diversity.

Needed Transmission Projects

RSP05 identifies 272 transmission projects required throughout New England to meet planning criteria. These upgrades are required to reliably serve load and to reduce the need to commit generating units for operating reserves, voltage support, and relief of other transmission constraints. These 272 projects are estimated to cost about $3.0 billion. Two-thirds of this cost is related to the following six major 345 kV projects.

- NSTAR 345 kV Reliability Project
- Southwest Connecticut Reliability Project Phase 1
- Northwest Vermont Reliability Project
- Northeast Reliability Interconnect (NRI) Project
- Southwest Connecticut Reliability Project Phase 2
- Southern New England Reinforcement Project

The load/generation pockets discussed in RSP05 include Middletown (CT); Norwalk-Stamford (CT); Southwest Connecticut; Springfield (MA); Boston; Wachusetts (MA); and the North Shore (MA). Additional studies are required to finalize many of the 272 projects, such as those required for increasing the northern New England transmission-transfer capability and improving the voltage performance of Downtown Boston.

Most of the transmission projects identified during the RSP process are reliability upgrades for ensuring the region continues to satisfy national and regional reliability standards while continuing to operate in an economical manner. Many of these upgrades will provide the additional benefit of enhancing the efficient operation of the region's power markets, as they will allow access to generating resources external to the load pockets, the repowering or interconnection of generating facilities, and the movement of power to where it is needed.

Infrastructure Achievements

This is the fifth year of ISO's leadership on the RTEP/RSP process for the region, and much progress has been made over the past years in planned transmission projects and market enhancements. Since the inception of the RTEP/RSP planning process in 2001, significant system improvements and modifications have been identified, seventy-five projects have been placed in service totaling $217 million in construction costs, and many others are well on their way toward completion. As of September 2005, the ISO had close to 500 MW enrolled in all of its demand-response programs implemented as part of Standard Market Design (SMD).[19] An audit in August 2004 of the demand-response programs showed these resources to be substantially capable when called upon to reduce load.

Transmission Upgrades

Because Connecticut and Southwest Connecticut are considered critical areas in terms of service reliability, shorter-term system improvements have been implemented in these areas. Coupled with reactive improvements to the distribution system, several completed reliability projects in Connecticut have enhanced both system reliability and market efficiency. Highlights of these projects are as follows:

- Elimination of a Long Mountain stuck-breaker contingency that led to the loss of three 345 kV lines
- Installation of the Glenbrook static compensator (STATCOM) to improve voltage performance in Southwest Connecticut
- Installation of two dynamic Voltage Ampere Reactive (DVAR) systems to improve voltage performance in Southwest Connecticut
- Installation of capacitor banks at strategic locations in Connecticut to further support steady-state voltage conditions
- Replacement of circuit breakers across Connecticut to increase short-circuit interrupt duty

ISO studies show that these improvements have reinforced the reliability of the Connecticut transmission system in advance of completing the major 345 kV reinforcement projects taking place in New England (see below). Earlier improvements have increased transfer limits into Southwest Connecticut by 300 MW, from 1,700 MW to 2,000 MW. More recent transfer-limit improvements have increased transfer limits into Southwest Connecticut by another 300 MW (up to 2,300 MW) and Connecticut's ability to import power by 100 MW up to 2,300 MW. These improvements help bring lower-cost energy into each area when available and mitigate the need for out-of-merit commitments for system reliability support. However, these projects have not eliminated the need for major additional system improvements.

Similarly, the NEMA upgrades, placed in service in the 2002 to 2003 timeframe, improved reliability to the northeastern Massachusetts/Boston load pocket while increasing transfer limits by 300 MW. The recent installation of a reactor in Cambridge helps improve VAR control in the Cambridge/Boston area during periods of lighter load. Significant progress has been made over the past year in siting and constructing five of the six major 345 kV projects the RTEP/RSP process has identified as critical for supporting a reliable power supply in New England into the foreseeable future, as summarized below:

- **NSTAR 345 kV Reliability Project**—increases the transfer limits into the Greater Boston area. The Massachusetts Energy Facilities Siting Board permitted the project in January 2005, and NSTAR has commenced construction. The projected in-service date is June 2006 for the first two cable circuits.

[19] ISO New England implemented Standard Market Design on March 1, 2003. SMD is an energy market structure that incorporates locational-marginal pricing, day-ahead and real-time energy markets, and risk-management tools to hedge against the adverse impacts of having to pay higher locational-marginal prices (LMPs) when transmission congestion occurs.

The third cable is scheduled for service before summer 2008. The first two cables will increase the import capability by 900 MW and the third cable by another 200 MW.

- **Northeast Reliability Interconnect Project**—adds a new 345 kV tie line between New England and New Brunswick to improve the transfer capability between the two regions by 300 MW and improve system performance in northern Maine. The Maine Public Utilities Commission permitted the project in July 2005. The projected in-service date for this project is December 2007.

- **Southwest Connecticut Reliability Project Phase 1**—improves the transfer of power and system performance in Southwest Connecticut as the first stage of the major Northeast Utilities/United Illuminating Company (NU/UI) 345 kV project. The project is currently under construction with a projected in-service date of December 2006. Phase 1 will increase the import capability by 275 MW.

- **Southwest Connecticut Reliability Project Phase 2**—improves the transfer of power and system performance in Southwest Connecticut as the second stage of the major NU/UI 345 kV project. The Connecticut Siting Council (CSC) permitted the project in April 2005, and the project is currently in the final design and analysis stage. Its projected in-service date is December 2009. Phase 2 will increase the import capability by 825 MW.

- **Northwest Vermont Reliability Project**—improves the Vermont Electric Power Company's (VELCO) 345 kV and 115 kV transmission system for the major load center in northwestern Vermont. The Vermont Public Service Board permitted the project in January 2005 and, as part of that approval, ordered several project modifications. VELCO has commenced construction, is preparing the final design, and is analyzing project modifications. The projected in-service dates for individual stages of the project range from May 2006 through October 2007.

In addition to the Connecticut, NEMA/Boston, and major 345 kV line projects, a number of other significant system improvements are being made. The North Shore/Ward Hill (MA) Substation is currently being upgraded to work in conjunction with the NSTAR 345 kV project. Two of three 115 kV line upgrades from Ward Hill Substation have been completed, and an autotransformer is being added. Other improvements were made to increase the reliability to the Cape Cod load pocket, including the addition of an autotransformer, a new line, and a capacitor bank. The Central Massachusetts Project, which will unload the Sandy Pond Substation transformers, and the Auburn Project, which will upgrade a number of stations and lines in the Auburn-DuPont-Bridgewater area, also are under construction.

To increase the SEMA/RI export capability, improvements were made to select breakers at West Walpole, West Medway, Millbury, and Sherman Road. To increase the ability to move power within the Norwalk-Stamford and SWCT load pockets, two lines from Glenbrook Substation were reconductored, and 115 kV cables in the Bridgeport area and the Baird-Congress 115 kV lines were upgraded. Autotransformers were added at Scobie Substation in New Hampshire and at West Rutland Substation in Vermont.

Other projects nearing construction or recently begun include the following:

- **Southwest Rhode Island**—will increase both reliability and inter-area transfer capability between Rhode Island and Connecticut.

- Y-138—will increase both reliability and increase the transfer capability between Maine and New Hampshire by 100 MW.

- **Monadnock**—will eliminate thermal and voltage problems and increase reliability by creating stronger ties between central Massachusetts, southeastern Vermont, and southwestern New Hampshire.

- **Vermont Northern Loop**—will increase the reliability of the line by looping it through the area instead of feeding it radially.

- **Haddam Substation**—will connect a 345/115 kV autotransformer into the 115 kV system in south-central Connecticut.

- **Killingly Substation**—will install a 345/115 kV autotransformer in Connecticut into a 115 kV system, increasing the transfer limit into Connecticut.

New Initiatives

RSP05 identifies several new ISO initiatives and tasks to improve its planning process and assure the future reliability of service to the region's load:

- Develop a *Horizon Year Study* to provide longer-term direction for New England's transmission development.

- Review the load-forecast methodology to improve its quality.

- Conduct a comprehensive review of all the methodologies, criteria, and assumptions used to calculate the Installed Capacity Requirements for the system and load pockets. The review will take about 18 months to complete, with any revisions incorporated in the calculation used to generate the IC Requirements for Power Year 2007–2008.

- Initiate a long-term program to improve the monitoring and control of the grid. This effort will assess the data-communication and substation monitoring and control equipment presently installed on the grid and the effectiveness of the methods and facilities system operators use to respond to contingencies, including load shedding.

- Identify and address those issues that obstruct the market from providing, in response to price signals, the resources needed to reliably operate the power grid. These measures will reduce the commitments made to generating resources operating out of economic merit order to satisfy power system criteria. One area of focus for this project will be to identify key upgrades to the power system infrastructure that would reduce or eliminate the need to commit out-of-market generation to control voltage.

- Investigate the pricing rules and operating procedures to ensure that they are consistent with each other and that barriers do not exist for properly pricing or efficiently using resources.

- Evaluate and apply advanced technology solutions to maximize the thermal use of existing rights-of-way and improve voltage performance. These solutions include the use of new conductor technologies and innovative voltage-control devices.

- Conduct interregional transmission planning. Implementation of the Northeast Planning Protocol and continued participation in NPCC activities will improve coordination with neighboring control areas.

- Review the long-term viability of each Special Protective Scheme (SPS) used on the New England bulk power system to optimize transfer capability.

Recommendations for New England

The following are the ISO's recommendations to assure, through market incentives where appropriate, a reliable and more robust electricity supply system is implemented in New England over the next 10 years:

- **Complete Transmission Projects**—Improve the New England infrastructure and maintain power system reliability in New England over the next 10 years by supporting the timely completion of ongoing transmission improvements identified in RSP05. The report currently contains 272 projects, which will continue to be modified on an ongoing basis as new improvements are identified and projects are completed or eliminated from the listing.

- **Develop Resources**—Increase systemwide resources by at least 160 MW in the 2008 to 2010 timeframe. Add 670 MW in the Greater Connecticut load pocket by 2009 to satisfy reliability needs. Increase quick-start resources by 530 MW in Greater Connecticut now and by 500 MW in BOSTON to improve operating flexibility and efficiency. Greater Southwest Connecticut also needs 350 MW of quick-start resources by 2009, but if added by 2006, it can help satisfy Greater Connecticut's reliability needs. These needs are not mutually exclusive. The addition of quick-start resources in Greater Connecticut or BOSTON will satisfy system requirements. Additions to quick-start resources in Greater Connecticut will satisfy load-pocket needs as well as system needs.

- **Enhance Fuel Diversity**—Develop mechanisms to attract an improved diversity of fuel types for the New England fleet of supply resources. This should include clean coal technologies and additional nuclear resources. In addition, investigate the impact that alternative resources, such as wind and distributed generation (DG), will have on the operation and long-term security of the power system.

- **Improve Firmness or Flexibility of Gas Resources**—Firm up gas-supply arrangements for at least 400 MW or convert 400 MW to dual-fuel operations in southern New England by 2006 to 2007. This will provide for reliable operation of the system during periods of high demand when natural gas may be unavailable for electricity generation. Increase the arrangements or conversions by 250 MW per year through 2008/2009 and by another 500 MW by 2009/2010.

- **Develop Gas Supplies**—Develop new gas supplies and delivery capacity, including LNG facilities, to meet increased demand in New England.

- **Increase Demand Response**—Increase the penetration of demand response as part of the overall supply to assure reliability and ensure its operability.

- **Improve Operational Control**—Initiate a long-term program to improve the monitoring and control of the grid, to prepare for the upcoming period in New England when capacity will become more constrained and to respond to recommendations of the August 2003 Blackout Task Force.[20] This will allow the ISO and the local control centers to better monitor the grid and more accurately initiate load shedding at a substation feeder level.

[20] Natural Resources Canada and U.S. Department of Energy, *The August 14 2003 Blackout One Year Later: Actions Taken in the United States and Canada to Reduce Blackout Risk*. Report to the U.S.-Canada Power System Outage Task Force, August 13, 2004.

BLUE SKY ENVIRONMENTAL LLC

MEMORANDUM

To: Jim Murkette and Ken Roberts

From: Don DiCristofaro
Blue Sky Environmental

Re: Bridgeport Fuel Cell Park
Environmental Site Assessment Summary

Date: June 22, 2006

In April 2003 Fuss & O'Neill, Inc. ("F&O") prepared a Phase I Environmental Site Assessment ("ESA") for the City of Bridgeport Department of Economic Development for the area shown in the attached Figure. F&O did not investigate the portions of land that are being remediated by CBS/Viacom Company (e.g., Bryant Electric). They did investigate several contiguous parcels fronted on State Street, Lesbia Street, Railroad Avenue, and Hancock Avenue, including all of the area for the proposed Bridgeport Fuel Cell Park except for the two parcels shown in the attached figure that are labeled as Bryant Electric. The ESA identifies this area as the "Proposed BCA Development Site."

In September 2003 F&O prepared a Phase II/III ESA. The entire development project by the City has been referred to the Connecticut Department of Environmental Protection ("CTDEP") Urban Sites Program and investigation activities as required to demonstrate compliance with Connecticut Remediation Standard Regulations ("RSRs"). Areas of concern ("AOCs") reported in the Phase I ESA include the potential presence of wide-spread polluted fill across the project area and uninvestigated site specific AOCs resulting from historic site use.

The AOCs identified with the Proposed BCA Development Site and the soil results found include the following:

AOC #1: Widespread Polluted Fill

Former buildings/improvements of the site were razed in the 1990s. It was unknown by what means the buildings were razed and whether the foundations and debris were still present at the site. Also, it was unknown if fill brought onto the site after the buildings were razed or was placed on the site prior to its original development in the late 1800s.

Soil Results

1040 Great Plain Avenue • 2nd Floor • Needham, MA • 02492
Telephone 781-453-1150 • Cell 617-834-8408 • Fax 781-453-1142

The majority of the test pits advanced during the Phase II/III assessment encountered soils characterized as urban fill. The fill contained various amounts of concrete, brick, ash, asphalt, and raw unprocessed coal. The depth of the fill ranged from one to eight feet. It appears the

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majority of the foundations of the former buildings were collapsed within themselves when the buildings were razed at the site. A review of the analytical results for the samples reveals that the fill contains releases of polynuclear aromatic hydrocarbons ("PAHs"), metals, and extractable total petroleum hydrocarbons ("ETPH"). No volatile organic compounds ("VOCs") or polychlorinated byphenyls ("PCBs") were detected in the fill material.

AOC #2: 14-16 Lesbia Street

According to the CTDEP spills database, four drums of waste oil were illegally discarded on this property in 1999. It is not clear if a release actually occurred at this parcel.

Soil Results

A review of the analytic data from the oil sample collected in the vicinity of the reported former spill did not indicate that a release of hazardous substances or petroleum products had occurred at this location. Total Petroleum Hydrocarbons ("TPHs") were detected and VOCs were not. The TPH detected is consistent with other TPH values detected in the fill material across the site. In addition, no physical evidence of contamination was noted during the advancement of the test pit. Coupled with the non-detection of VOCs, it appears that a release has not occurred in this area; therefore, F&O recommends no additional investigation for this AOC.

AOC#3: Former Printing Facility (573 Hancock Avenue)

According to historic Sanborn mapping, a printing facility was located at this property. Hazardous substances and petroleum products were likely used during printing operations.

Soil Results

A review of the analytical data from the surficial soil sample collected in the vicinity of the former printing facility did not indicate that a release of hazardous substances or hazardous wastes had occurred at this location. VOCs, TPH, and PCBs were not detected in the surficial sample. Trace concentrations of metals within inferred background conditions were detected. It appears that a release has not occurred in this area; therefore, F&O recommends no additional investigation for this AOC.

AOC #8: Additional USTs

Exploratory trenches were excavated on the properties along Lesbia Street and Hancock Avenue to attempt to locate underground storage tanks ("USTs") potentially abandoned in place.

Soil Results

Two USTs were discovered along parcels on Hancock Avenue (603 and 611 Hancock Avenue). The USTs appear to be associated with the former dwellings/stores formerly located at the site and are approximately 1,000 gallons in size. They likely were used to store fuel oil for heating purposes. F&O recommended the removal of the two USTs in accordance with CTDEP guidelines. The City is checking with F&O to see if the tanks were ever removed.

Groundwater Results

F&O relied on data collected during previous investigations conducted at or in the vicinity of the site to assess the groundwater. A pump and treat groundwater remediation system has been installed by Woodard & Curran as part of the Bryant Electric remediation effort. The pump and treat system was installed to remediate a VOC plume emanating from the former Bryant Electric facility, east and upgradient of the site. In general, trichloroethylene ("TCE") is the prevalent constituent present in the groundwater. Low levels of VOCs were detected in the wells located to the north of the fuel cell site. TCE exceed the baseline Residential Volatilization Criteria ("Res VC") at one monitoring well; however, the shallower wells do not exceed the criteria. TPH and trace semi volatile organic compounds ("SVOCs") were also detected in these wells. Detected metal concentrations exceeded the Surface Water Protection Criteria ("SWPC").

TCE concentrations detected in wells along Hancock Avenue also exceed the Res VC. Several metals exceeded the SWPC.

VOCs, metals and TPH were detected in the wells located at 1366 Railroad Avenue. Baseline exceedances of the SWPC and Res VC were found.

Additional Notes

- The CTDEP has limited the liability of downgradient property owners that have been impacted by upgradient sources. The CTDEP's policy on upgradient sources of contamination is that a downgradient property owner is not responsible for remediating groundwater contamination flowing onto his or her property from another site, as long as the contamination is present solely as a result of the off-site sources.

- Numerous soil borings were made and are include in the Phase II/III ESA. Depth to bedrock is estimated to be 25 to 50 feet.

- Although the site is used for industrial purposes, the Residential Direct Exposure Criteria ("DEC") apply to all sites located in Connecticut unless an environmental land use restriction ("EULR") is approved by the CTDEP and filed on the site's land records indicating that the parcel can only be used for industrial/commercial purposes. According to the City, "there is no ELUR in place yet on any portion of the site. There is a Special Warranty Deed on the Bryant portion which speaks to land use -- prohibiting certain uses, like day-care, for example. The ELUR would be put in place after the plant is built. As of now, it would be envisioned to cover only the Bryant portion of the site." We need to determine if this will be adequate.

- The Plating Center Facility was located to the northwest of the project site at 86 Lesbia Street and is now part of the Carr's site.

- The Kemvolt Facility (a plating equipment facility) was located to the north of the project site at 1483-1507 State Street and is now part of the Carr's site.

- Additional AOCs to the north of the project site include a former UST and a dry cleaner/automobile supply store at 1511-1519 State Street

- In the late 1800s, the P.T. Barnum circus occupied portions of the site.

Phase II/III Conclusions and Recommendations

- Releases of hazardous substances or hazardous wastes were not detected at AOC #2 and AOC #3. F&O recommends no additional investigation with respect to these AOCs.

- Two 1,000 gallon fuel oil USTs are located at 603 and 611 Hancock Avenue. F&O recommends these two USTs be removed. The City is checking with F&O to see if the tanks were ever removed.

- Urban fill is present across the site (AOC #1) ranging from one to eight feet below grade. The urban fill contains releases of TPH, PAHs, and heavy metals. Characterization of the urban fill indicates exceedances of the GB pollutant mobility criteria ("PMC"), Res DEC, and industrial/commercial ("I/C") DEC specified in the RSRs present. No VOCs were detected within the fill material.

To address the urban fill material, an institutional control EULR and/or an engineered control (a direct exposure criteria cap) could be used to limit the amount of active remediation that would be required to bring the site into compliance with the direct exposure criteria specified in the RSRs. In addition, the RSR self-implementing PMC exception for the presence of ash, coal, and asphalt may be used for lead and PAH exceedances. Alternatively, much of the AOC #1 soils could be environmentally isolated by buildings to address PMC issues that may be considered during a future development project.

More specifically, the RSRs permit the use of engineered controls (caps) to contain contamination at sites under certain circumstances. Soils located greater than two feet below asphalt covered surfaces and more than four feet below gravel or grass covered areas could be rendered "inaccessible" with an ELUR limiting the amount of active remediation required at exterior portions of the site to shallow soils (less than 2 or 4 feet below grade as described above).

With respect to the GB PMC exceedances noted on this site, it may be possible to use the self implementing coal, ash, and asphalt PMC exemption due to the nature of the fill.

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<u>Soil Results</u>

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Two USTs were discovered along parcels on Hancock Avenue (603 and 611 Hancock Avenue). The USTs appear to be associated with the former dwellings/stores formerly located at the site and are approximately 1,000 gallons in size. They likely were used to store fuel oil for heating purposes. F&O recommended the removal of the two USTs in accordance with CTDEP guidelines. The City is checking with F&O to see if the tanks were ever removed.

Groundwater Results

F&O relied on data collected during previous investigations conducted at or in the vicinity of the site to assess the groundwater. A pump and treat groundwater remediation system has been installed by Woodard & Curran as part of the Bryant Electric remediation effort. The pump and treat system was installed to remediate a VOC plume emanating from the former Bryant Electric facility, east and upgradient of the site. In general, trichloroethylene ("TCE") is the prevalent constituent present in the groundwater. Low levels of VOCs were detected in the wells located to the north of the fuel cell site. TCE exceed the baseline Residential Volatilization Criteria ("Res VC") at one monitoring well; however, the shallower wells do not exceed the criteria. TPH and trace semi volatile organic compounds ("SVOCs") were also detected in these wells. Detected metal concentrations exceeded the Surface Water Protection Criteria ("SWPC").

TCE concentrations detected in wells along Hancock Avenue also exceed the Res VC. Several metals exceeded the SWPC.

VOCs, metals and TPH were detected in the wells located at 1366 Railroad Avenue. Baseline exceedances of the SWPC and Res VC were found.

Additional Notes

- The CTDEP has limited the liability of downgradient property owners that have been impacted by upgradient sources. The CTDEP's policy on upgradient sources of contamination is that a downgradient property owner is not responsible for remediating groundwater contamination flowing onto his or her property from another site, as long as the contamination is present solely as a result of the off-site sources.

- Numerous soil borings were made and are include in the Phase II/III ESA. Depth to bedrock is estimated to be 25 to 50 feet.

- Although the site is used for industrial purposes, the Residential Direct Exposure Criteria ("DEC") apply to all sites located in Connecticut unless an environmental land use restriction ("EULR") is approved by the CTDEP and filed on the site's land records indicating that the parcel can only be used for industrial/commercial purposes. According to the City, "there is no ELUR in place yet on any portion of the site. There is a Special Warranty Deed on the Bryant portion which speaks to land use -- prohibiting certain uses, like day-care, for example. The ELUR would be put in place after the plant is built. As of now, it would be envisioned to cover only the Bryant portion of the site." We need to determine if this will be adequate.

- The Plating Center Facility was located to the northwest of the project site at 86 Lesbia Street and is now part of the Carr's site.
- The Kemvolt Facility (a plating equipment facility) was located to the north of the project site at 1483-1507 State Street and is now part of the Carr's site.
- Additional AOCs to the north of the project site include a former UST and a dry cleaner/automobile supply store at 1511-1519 State Street
- In the late 1800s, the P.T. Barnum circus occupied portions of the site.

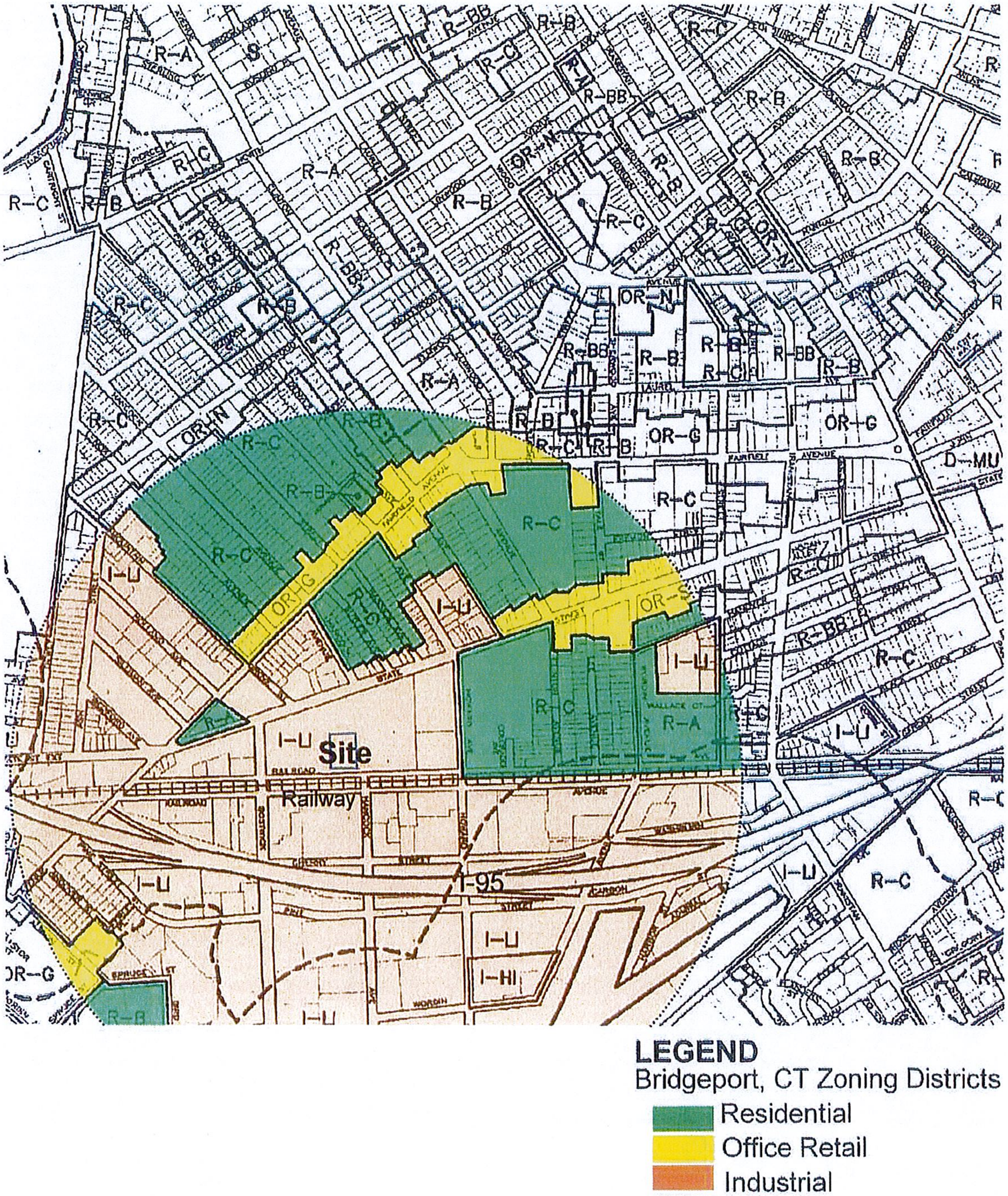
Phase II/III Conclusions and Recommendations

- Releases of hazardous substances or hazardous wastes were not detected at AOC #2 and AOC #3. F&O recommends no additional investigation with respect to these AOCs.
- Two 1,000 gallon fuel oil USTs are located at 603 and 611 Hancock Avenue. F&O recommends these two USTs be removed. The City is checking with F&O to see if the tanks were ever removed.
- Urban fill is present across the site (AOC #1) ranging from one to eight feet below grade. The urban fill contains releases of TPH, PAHs, and heavy metals. Characterization of the urban fill indicates exceedances of the GB pollutant mobility criteria ("PMC"), Res DEC, and industrial/commercial ("I/C") DEC specified in the RSRs present. No VOCs were detected within the fill material.

To address the urban fill material, an institutional control EULR and/or an engineered control (a direct exposure criteria cap) could be used to limit the amount of active remediation that would be required to bring the site into compliance with the direct exposure criteria specified in the RSRs. In addition, the RSR self-implementing PMC exception for the presence of ash, coal, and asphalt may be used for lead and PAH exceedances. Alternatively, much of the AOC #1 soils could be environmentally isolated by buildings to address PMC issues that may be considered during a future development project.

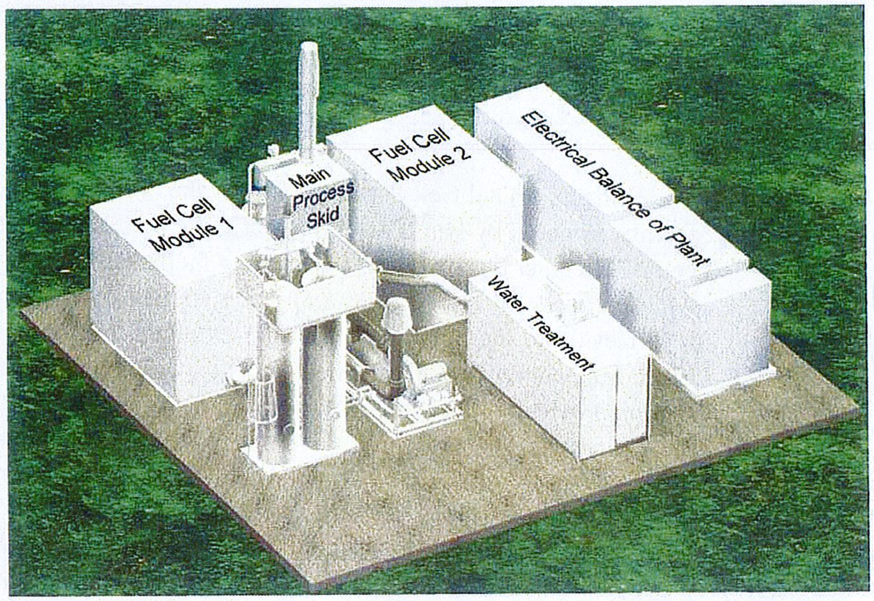
More specifically, the RSRs permit the use of engineered controls (caps) to contain contamination at sites under certain circumstances. Soils located greater than two feet below asphalt covered surfaces and more than four feet below gravel or grass covered areas could be rendered "inaccessible" with an ELUR limiting the amount of active remediation required at exterior portions of the site to shallow soils (less than 2 or 4 feet below grade as described above).

With respect to the GB PMC exceedances noted on this site, it may be possible to use the self implementing coal, ash, and asphalt PMC exemption due to the nature of the fill.



Summary of Bridgeport Land Use Zoning in the Project Area

Noise Impact Assessment



Bridgeport Fuel Cell Park

Bridgeport, Connecticut

August 8, 2006

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Environmental Noise Impact Assessment
Bridgeport Fuel Cell Park

Background

The Bridgeport Fuel Cell Park ("BFCP" or the "Project") is a commercial fuel cell generating facility proposed by Pure Power, LLC at a site on Lesbia Street in Bridgeport, Connecticut. In contrast to other types of power generating facilities, fuel cell equipment has a very low profile with few mechanical processes with the potential to emit sound energy. The analyses in this report evaluate the potential noise impact of the proposed Project. The study is based on equipment configuration provided by Fuel Cell Energy. The assessment is based on the criteria provided in the City of Bridgeport's Noise Control Regulations, which are the same as the Connecticut Department of Environmental Protection Noise Regulations.

Ambient sound levels in the area were established by direct measurements with standardized equipment. Equipment sound levels were estimated based on vendor design discussions and previous measurements at similar equipment. Sound level modeling techniques were used to estimate the potential impacts at receiving locations in various zones. In each case, the modest sound levels associated with the fuel cell technology will be less than the applicable standards.

Overview of Project and Site Vicinity

The Project site is located in Bridgeport between State Street and Railroad Avenue. This is in an industrial area where old industrial sites are being upgraded to modern commercial structures. While there are still old industrial facilities and heavy industry between Railroad Avenue and Interstate I-95, they are not used as a context for this study. It is the intent of this project to contribute to the renovation plans for the area. A brief overview of observed land uses is illustrated on an annotated aerial view of the project area in Figure 1.

The site is currently unused except for what appears to be laydown area for some neighboring land uses. The site was well vegetated during the survey, but the vegetation was not dense forest that could significantly affect site sound levels. The vegetation is relatively low and brushy. Since the site will be razed in the process of developing it for this project, the existing conditions are representative of future conditions from an acoustical standpoint.

The property to the west of the site was an unused industrial facility until its recent removal. It is now an open field from Railroad Avenue to State Street, interrupted only by spoils piles. Beyond the empty site to the west is the Hubble Center. To the north of the site is a distribution and transportation center for Carr Ice Cream. East of the site is a huge warehouse that is under construction to provide a storage and distribution center for many kinds of floor tile. South of the site is the elevated roadbed for the Amtrak and commuter rail. Trains were occasionally noted during field studies. Beyond the railroad are widely varied industrial land uses and Interstate I-95.

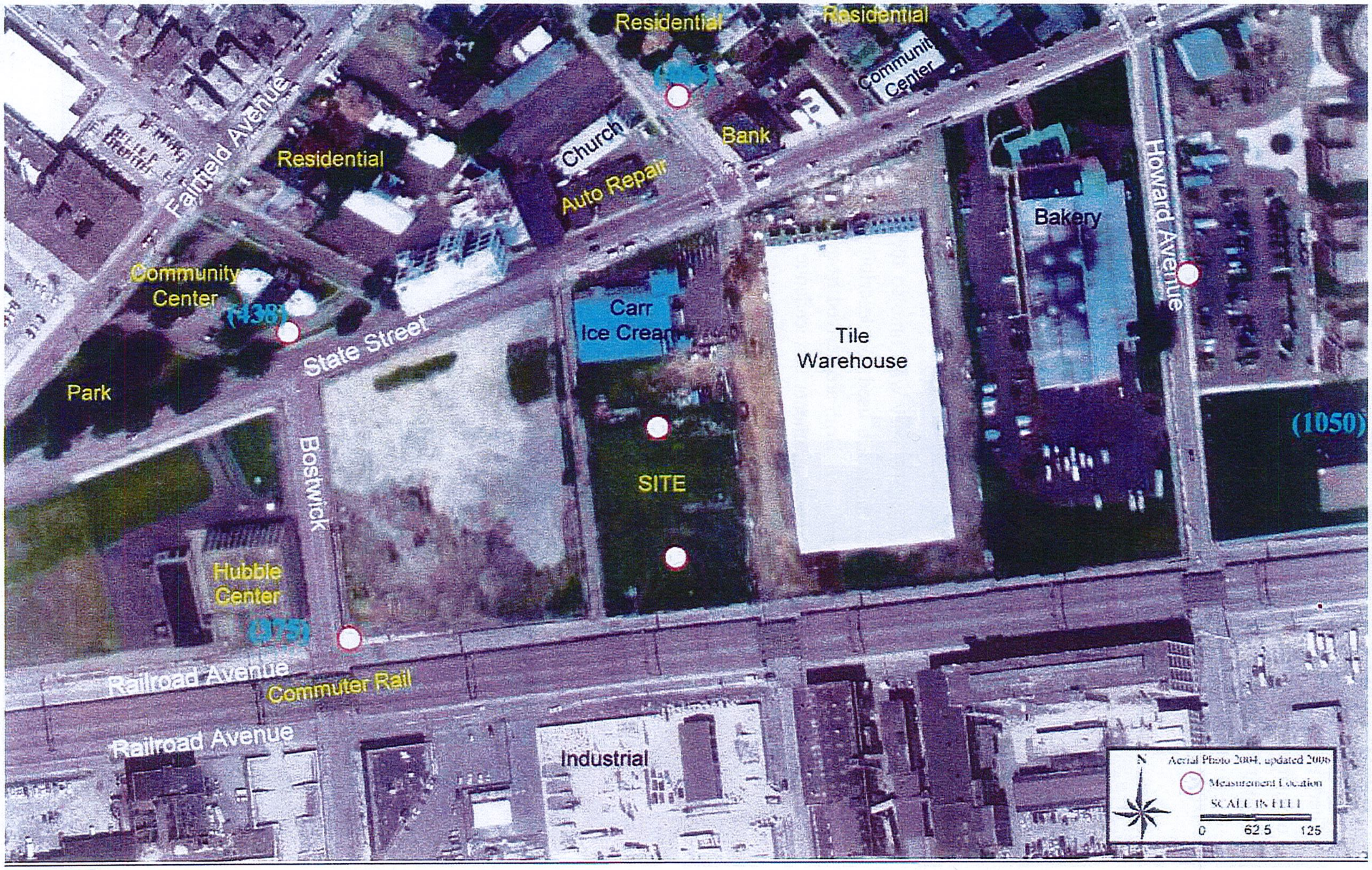

Figure 1: Overview of the Analyzed Noise Receptors, (Distances in Feet) and Community Character in the Area

Discussion of General Noise Analysis Methods

There are a number of ways in which sound (noise) levels are measured and quantified. All of them use the logarithmic decibel (dB) scale. Following is a brief introduction to the noise measurement terminology used in this assessment.

Noise Metrics

The Sound Level Meter used to measure noise is a standardized instrument.[1] It contains "weighting networks" to adjust the frequency response of the instrument to approximate that of the human ear under various circumstances. One of these is the *A-weighting* network. A-weighted sound levels emphasize the middle frequency sounds and de-emphasize lower and higher frequency sounds; they are reported in decibels designated as "dBA." Figure 2 illustrates typical sound levels produced by sources that are familiar from everyday experience.

The sounds in our environment usually vary with time so they cannot simply be described with a single number. Two methods are used for describing variable sounds. These are *exceedance levels* and *equivalent level.* Both are derived from a large number of moment-to-moment A-weighted sound level measurements. Exceedance levels are designated L_n, where "n" can have any value from 0 to 100 percent. For example:

- L_{90} is the sound level in dBA exceeded 90 percent of the time during the measurement period. The L_{90} is close to the lowest sound level observed. It is essentially the same as the *residual* sound level, which is the sound level observed when there are no loud, transient noises.
- L_{50} is the median sound level: the sound level in dBA exceeded 50 percent of the time during the measurement period.
- L_{10} is the sound level in dBA exceeded only 10 percent of the time. It is close to the maximum level observed during the measurement period. The L_{10} is sometimes called the *intrusive* sound level because it is caused by occasional louder noises like those from passing motor vehicles. By using exceedance levels, it is possible to separate prevailing, steady noises (L_{90}) from occasional, louder noises (L_{10}) in the environment.
- The *equivalent level* is the level of a hypothetical steady sound that has the same energy as the actual fluctuating sound observed. The equivalent level is designated L_{eq}, and is also A-weighted. The equivalent level is strongly influenced by occasional loud, intrusive noises.

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1 *American National Standard Specification for Sound Level Meters*, ANSI S1.4-1983, published by the Standards Secretariat of the Acoustical Society of America, Melville, NY.

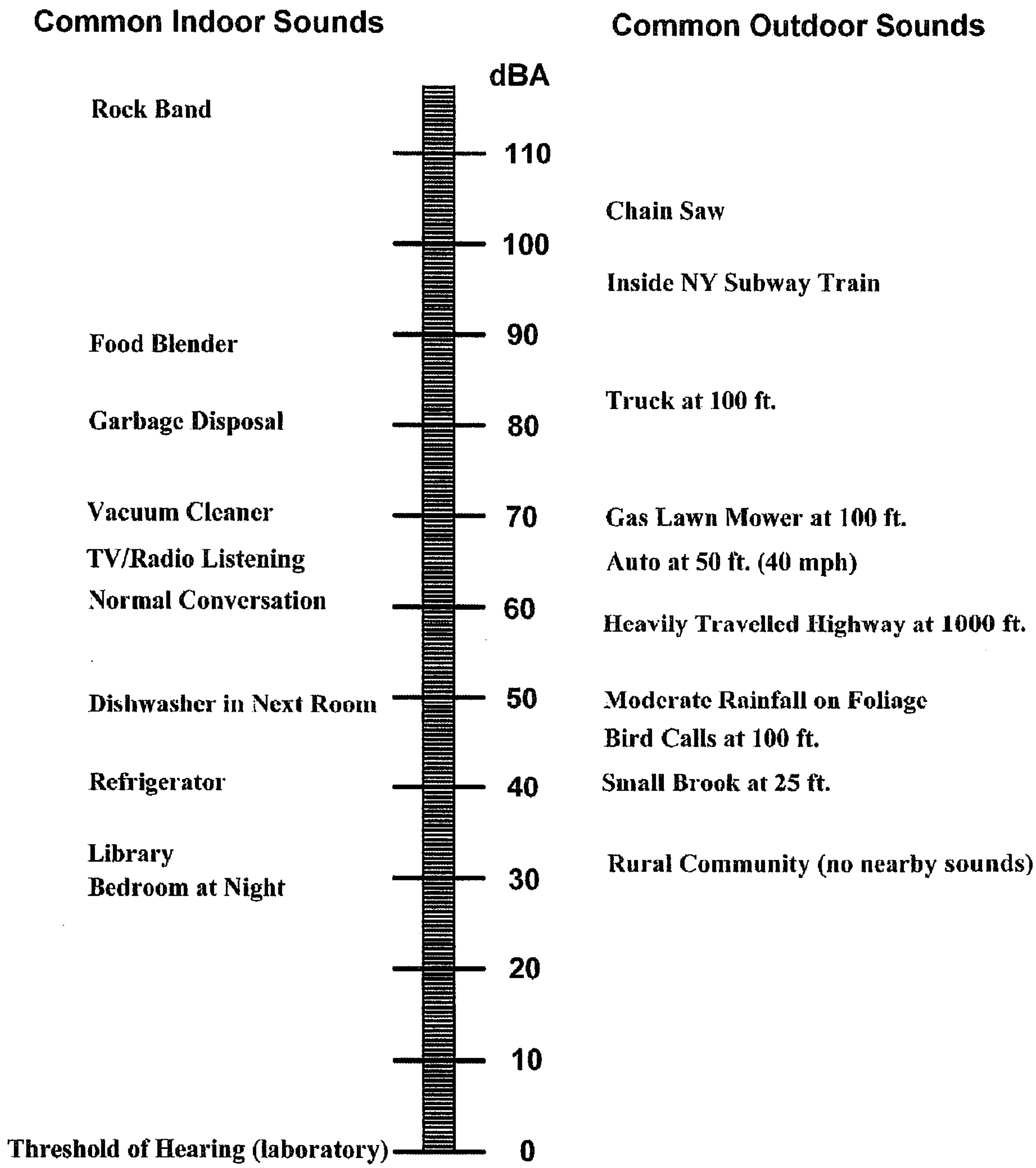


Figure 2:
Typical Sound Levels from Everyday Experience

When a steady sound is observed, all of the L_n and L_{eq} are equal. This analysis is based on the L_{eq} metric. All broadband levels represented in this study are weighted using the A-weighting scale.

In the design of noise control treatments, it is essential to know something about the frequency spectrum of the sound of interest. Noise control treatments do not function like the human ear, so simple A-weighted levels are not useful for noise-control design or the identification of tones. The frequency spectra of sounds are usually stated in terms of *octave band sound pressure levels*, in dB, with the octave frequency bands being those established by standard.[2] The sounds in the community were measured in 1/3 octave band levels. The sounds expected as a result of this project have been evaluated with respect to the octave band sound pressure levels as well as the A-weighted equivalent sound level. For simplicity they are summarized in this report in terms of the combined A-weighted level.

Noise Regulations and Criteria

Sound compliance is judged on two bases: the extent to which governmental regulations or guidelines are met, and the extent to which it is estimated that the community is protected from excessive sound levels. The governmental regulations that may be applicable to sound produced by activities at the Site are summarized below.

- ***Federal***

Occupational noise exposure standards: 29 CFR 1910.95. This regulation restricts the noise exposure of employees at the workplace as referred to in Occupational Safety and Health Administration requirements. The facility will emit only occasional sounds of modest levels, as demonstrated by this study.

- ***State***

Project sounds are controlled by Connecticut Regulation Title 22a, Sections 69-1 through 69-7.4, Control of Noise. Pursuant to Section 22a-69-2.5, the Project is in a Class C noise zone (I-LI or Industrial / Light Industrial) and is thus a Class C emitter. Adjacent properties are also zoned I-LI and were evaluated as a Class C Noise Zone. The nearest residential zone is north of the site beyond State Street on Hancock at 406 feet from the Project. The corresponding plant criteria are shown in Table 1 below. Also shown are the results of the facility operating sound levels.

2 *American National Standard Specification for Octave, Half-octave and Third-octave Band Filter Sets*, ANSI S1.11-1966 (R1975).

Table 1: Summary of Connecticut Noise Standards for Class C Emitters

"(a) No person in a Class C Noise Zone shall emit noise exceeding the levels stated herein and applicable to adjacent Noise Zones:"

Receptor			
Industrial	*Commercial*	*Residential Day*	*Residential Night*
70 dBA	66 dBA	61 dBA	51 dBA]

- *Local*

Bridgeport has Noise Control Ordinances under Health and Safety at Chapter 8.80. The quantitative standards are the same as the State standards, as summarized in the table below.

"**A.** It is unlawful for any person to emit or cause to be emitted any noise beyond the boundaries of his/her premises in excess of the noise levels established in these regulations.

B. Noise level standards:

Receptor's Zone

Emitter's Zone	**Industrial**	**Commercial**	**Residential/Day**	**Residential/ Night**
Residential	62 dBA	55 dBA	55 dBA	45 dBA
Commercial	62 dBA	62 dBA	55 dBA	45 dBA
Industrial	70 dBA	66 dBA	61 dBA	51 dBA

C. High background noise levels and impulse noise.

1. In those individual cases where the background noise levels caused by sources not subject to these regulations exceed the standards contained in this chapter, a source shall be considered to cause excessive noise if the noise emitted by such source exceeds the background noise levels by five dBA, provided that no source subject to the provisions of this chapter shall emit noise in excess of eighty (80) dBA at any time, and provided that this section does not decrease the permissible levels of other sections of this chapter.

2. No person shall cause or allow the emission of impulse noise in excess of eighty (80) dB peak sound pressure level during the nighttime to any residential noise zone.

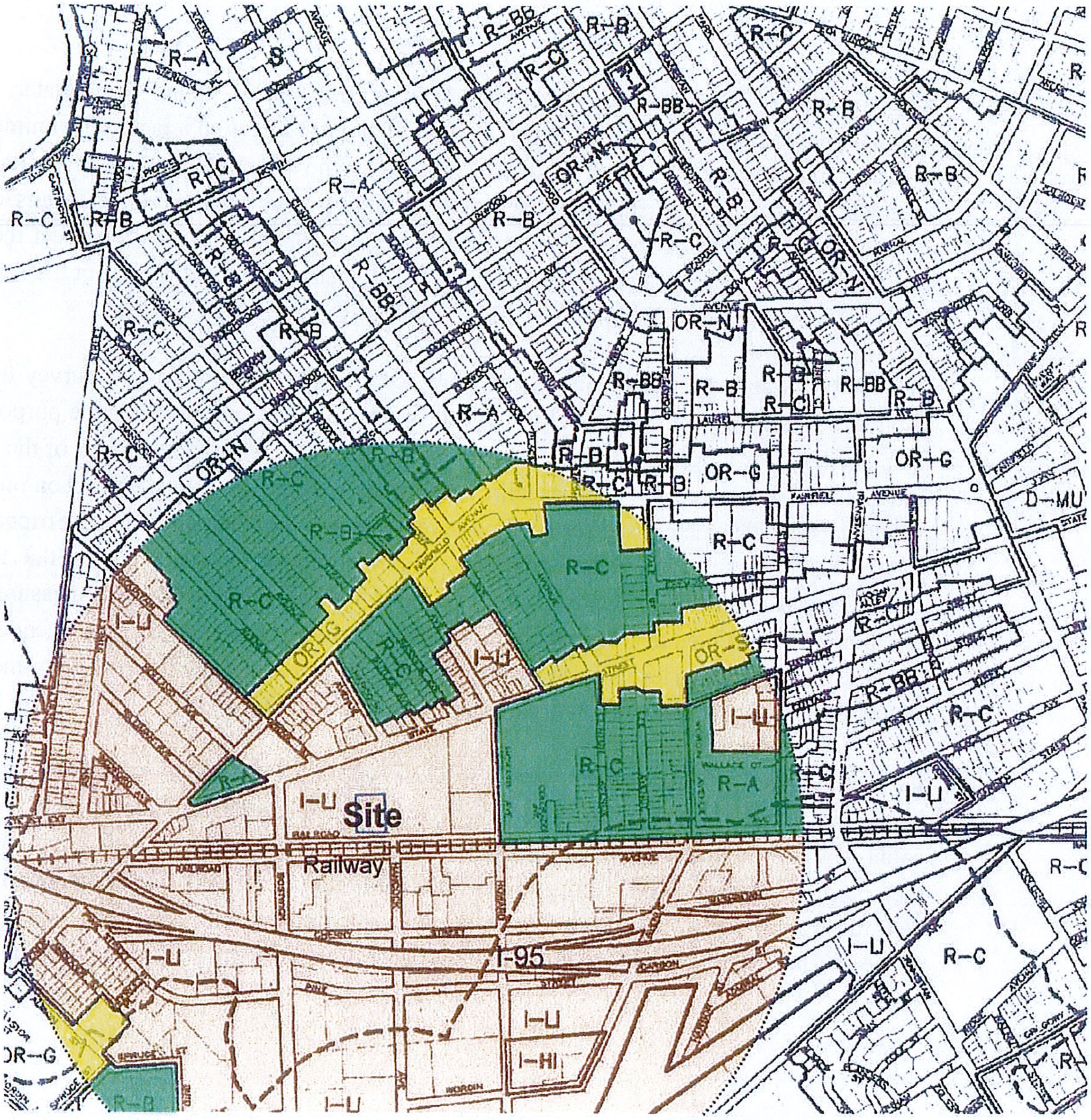
3. No person shall cause or allow the emission of impulse noise in excess of one hundred (100) dB peak sound pressure level at any time to any zone"

Since the noise standards are based on the land use of the emitter and the receiver, the current land use in the area is important to the study. Figure 3 shows the land use map for the area near the project site. The site and properties nearest the site are industrial in use. The nearest commercial zone is north of Fairfield Avenue. The nearest residential area is on Hancock Street north of State Street. The zoned land use as well as the observed land use was considered in the selection of relevant noise analysis points.

Existing Community Sound Levels

A site survey and noise measurement study was conducted for the facility from June 13 to 15, 2006. The sound levels were established at the site by direct measurements of five minute intervals over a 33-hour period that included two nighttime periods. The results of that contiguous monitoring survey are shown in Figures 4a and 4b. The curves illustrate the diurnal fluctuation of the level with wildly fluctuating levels during the daytime and more steady lower levels during the night. The moment-to-moment sound levels fluctuate based on the community events that occur during that moment. The quiet period for the area is shown to be from about midnight to 5:00 am. The monitoring results indicate that the existing sound levels at the Site are 47 to 50 dBA during the quietest hours of the night period. During the daytime there were construction activities at several nearby residences and the sound from roadway and aircraft traffic were much more frequent than during the nighttime. The corresponding daytime levels ranged from the mid 50's dBA to the mid 60's dBA. Individual 5-minute intervals reached as high as 73 dBA. The highest intervals were observed to be associated with individual events like a flight of helicopters overhead and construction activities.

Additional information is provided by a comparison of the two data streams. The levels at the south end of the site are generally several dB lower than the north end of the site. Although the southern microphone is closer to the industrial activities and freeway, it is also shielded from those sources by the elevated railroad bed. Individual trucks can be seen moving along the freeway from the north end of the site, but not the south end of the site.



LEGEND
Bridgeport, CT Zoning Districts

- Residential
- Office Retail
- Industrial

Figure 3:
Summary of Bridgeport Land Use Zoning in the Project Area

The contiguous measurements were made with a Rion NL-31 sound level meter. The microphone was mounted on a tripod at a height of about 5 feet with a factory recommended 2-inch windscreen. The meter continually samples the sound, but was programmed to calculate the sound level statistics once per 1-minute period. The periodic results of the measurements are stored in permanent memory while the meter proceeds to collect the data for the next measurement interval. Various statistical metrics were collected, but the L_{eq} cited in this report represent the sound level of all community sources near and far.

Attended spot sound level measurements were occasionally made during the survey using a Rion NA-27 sound level meter. The attended measurements were made for the purposes of spot checking the long term monitor, to capture the frequency-specific character of the sound and to compare the sound level at specific community receptors with that of the continuously measured site. The meter used for spot measurements was mounted on a separate tripod, also approximately 5 feet above the ground. The microphone was fitted with the factory recommended 3-inch foam windscreen. The meter was programmed to take measurements for 20 minutes and then to store processed statistical levels. During each of the attended spot samples the fluctuating levels were similar to the levels measured by the long-term monitor. The results of the spot measurements are summarized in Table 2.

All meters meet the requirements of ANSI S1.4 Type 1 – Precision specification for sound level meters. Each meter was factory verified within one year of the study. They were calibrated in the field using a Larsen Davis Cal200 acoustical calibrator before and after the measurement session. The results of the field calibration indicated that the meters did not drift during the study. The Spot Sampling meter is equipped with a real time octave band filter set. The filter complies with the requirements of the ANSI S1-11 for octave band filter sets.

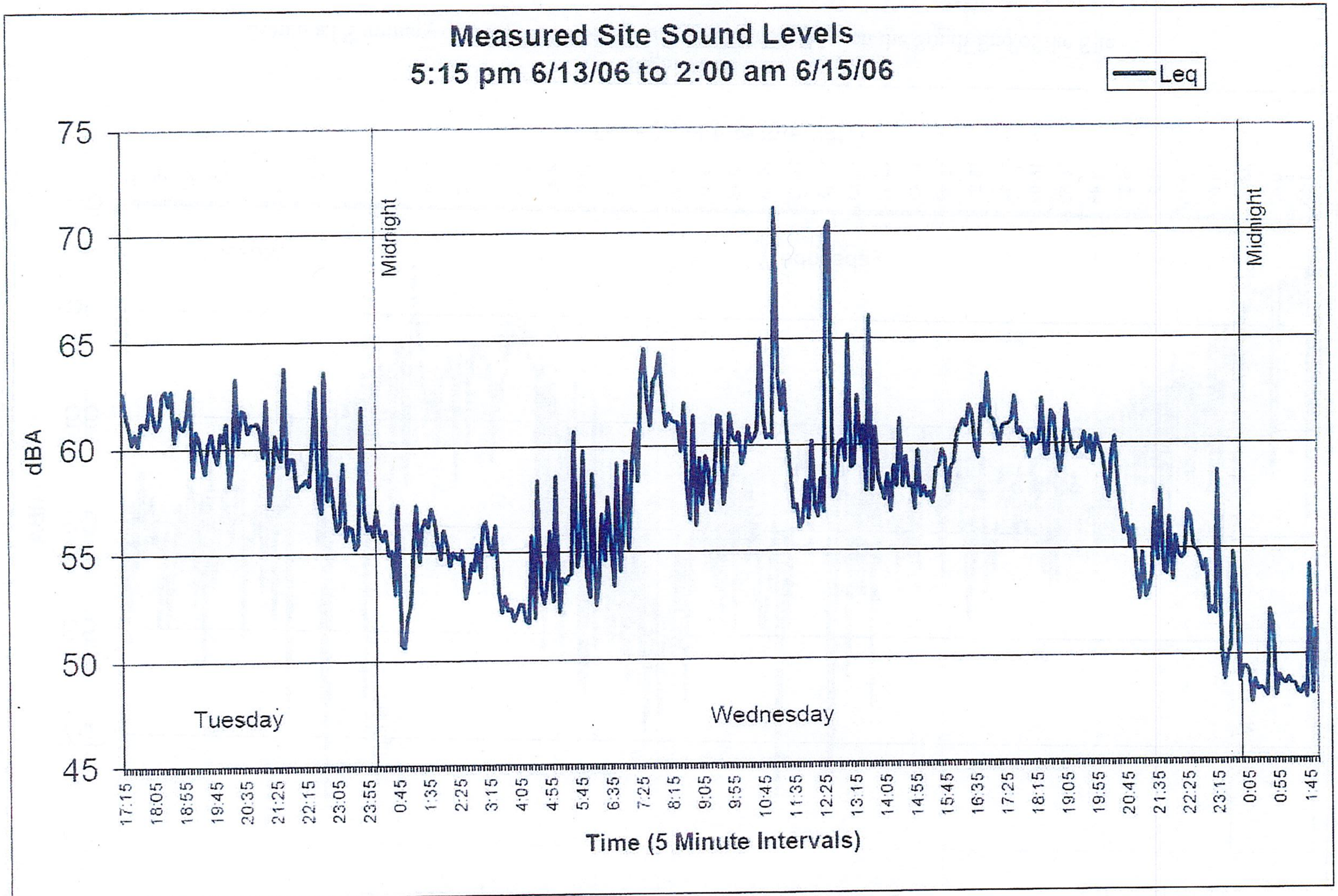


Figure 4a:
Graphical Summary of Long Term Site Noise Monitoring (L_{eq}) on the North End of the Site

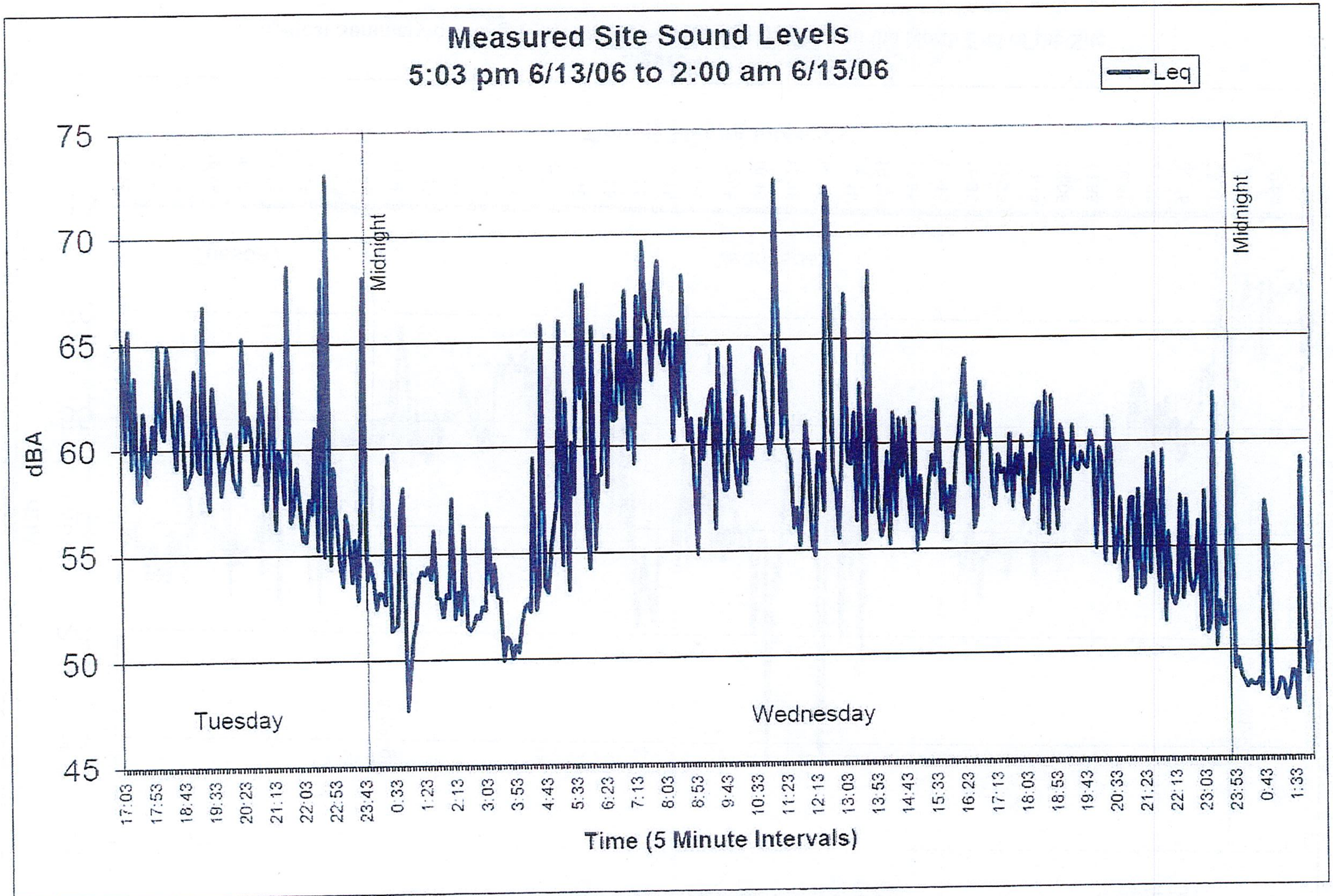


Figure 4b:
Graphical Summary of Long Term Site Noise Monitoring (L_{eq}) on the South End of the Site

TABLE 2: Summary of Ambient Sound Level Spot Measurements

Location	Time	Period	Leq (dBA)	Dominant Sound Sources
1. Site	17:19	Evening	61	Distant traffic, industry south, train.
	00:14	Night	54	Distant traffic, distant aircraft, HVAC.
	11:16	Day	62	Distant traffic, aircraft, construction, train.
	22:40	Evening	53	Distant traffic, distant aircraft, HVAC.
2. Bostwick @ Railroad	00:46	Night	55	Distant traffic, distant aircraft.
3. Community Center	01:14	Night	56	Traffic, distant traffic, distant aircraft, HVAC.
	11:14	Evening	62	Traffic, distant traffic, distant aircraft, HVAC.
4. Residences @ Hancock	01:50	Night	50	Traffic, distant traffic, distant aircraft, HVAC.
	10:46	Day		Traffic, distant traffic, construction distant aircraft, bird.
	11:50	Evening	50	Traffic, distant traffic, distant aircraft, HVAC.
4. Howard Street	2:33	Night	60	Traffic, distant aircraft, bakery HVAC, pedestrians.
	10:23	Day	65	Traffic, trucks, construction activities, aircraft.
	00:24	Evening	59	Traffic (Rte 125), trucks, airplanes, birds

Expected Sounds from the Proposed Installation

The proposed installation has been designed with significant attention to protecting the community sound environment. Most of the equipment planned for the installation will produce no sound. The fuel cell technology does not require many of the mechanical sources of noise that are typical of power generation facilities. But the process will emit some sound energy, which is quantified and modeled into the community as described in the following section.

This analysis represents the most likely sound levels to be expected as a result of the normal operation of the facility using data from equipment vendors. This analysis demonstrates that it is feasible to operate the proposed equipment at the site within the Bridgeport and Connecticut Department of Environmental Protection ("DEP") noise criteria. Furthermore, the installation will produce sound levels that are not noticeable (below ambient) at offsite residences.

A computer model was developed for the facility's sound levels based on conservative sound propagation principles prescribed in the acoustics literature. For conservatism, all sources were assumed to make continuous contributions to the area sound levels during the periods when they operate. Input source values for the equipment operating noise levels and building design were obtained through the vendor data. Each of the potential sources during routine operation of the facility was identified. The sound from each facility-related source is estimated at the source and at the nearest off-site receptors. The sum of the contributing sources is used to represent the predicted sound level at the modeled location. Identifying specific receiving locations is a key element of the noise modeling, since sound levels decrease exponentially with increasing distance. The distances used in this study represent the distance between the sources and the nearest off-site residences.

Sources of Project Sound

There are several sources of modest sound at the facility. They are described below and shown graphically in Figures 5 and 6. Under normal conditions, the few noise sources will produce consistent sound through the day and night. At least one source, the cooling condenser on the Water Processing Skid, will cycle on and off based on the process temperature and cooling requirement. For this conservative study, all sources are analyzed as continuous sources.

The core of this technology, the direct fuel cell modules, will produce no significant sound. Ancillary equipment includes a blower that will pump fresh air into the main process skid. This blower is fitted with silencers to minimize the potential noise impact. There is another blower in the main process skid which accumulates anode gas and mixes it with air for residual oxidation. This blower also serves the heat recovery equipment. Above the water treatment cabinet will be located a cooling condenser to support equipment inside the cabinet. The condenser is similar to many in the area used at residential locations. It will produce sound when the fan is actively providing cooling for the system. There will be several secondary sources of sound in and on the enclosures that represent the Electrical Balance of Plant. There will be relatively small transformers (138 kVA) in one section, with electrical buses and inverters in other sections. These areas require ventilation that will be provided by fans mounted on the enclosures. The gas processing equipment will produce some sound, but will be less than other sources and is limited to high frequencies that are quickly absorbed by the atmosphere; thus, it is not quantified in this study. A block model that shows the components of the Fuel Cell Unit is shown in Figure 5.

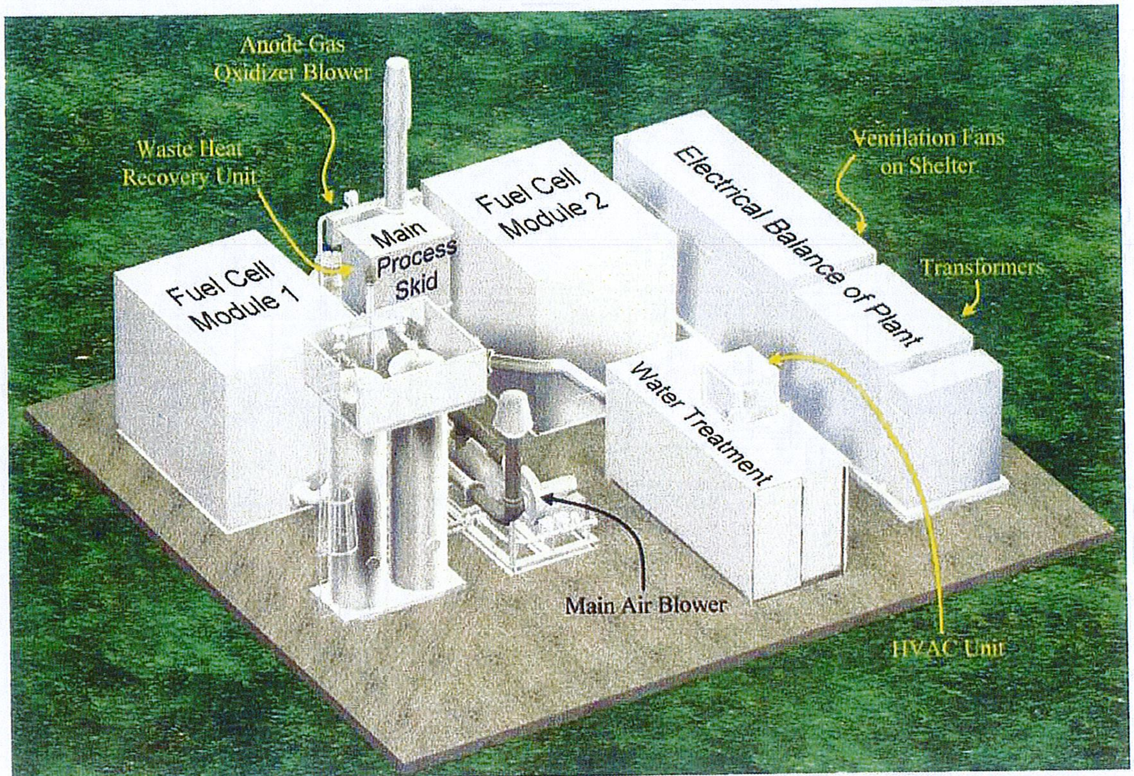


Figure 5:
Graphical Summary of Individual Sources of Sound on the Fuel Cell Unit

The facility will be made up of six fuel cell units along with some additional support features. The entire site will be surrounded by a 6-foot berm that is topped by a 6-foot stockade fence. These features will provide some additional shielding of sources that are low to the ground, and facility sources are generally low to the ground. No credit was taken for this partial shielding in this conservative analysis. At distant locations, the sound from all six DFC3000 fuel cell units will contribute to the receptor sound level. However, at property line locations, the sound at any single point along the property line will be dominated by the nearest one or two of the identical units. For this reason, property line levels are based on the combined sound of the two nearest units. The site layout plan is shown in Figure 6. A conceptual rendering of the combined site layout in the context of nearby buildings and property lines is shown in Figure 7.

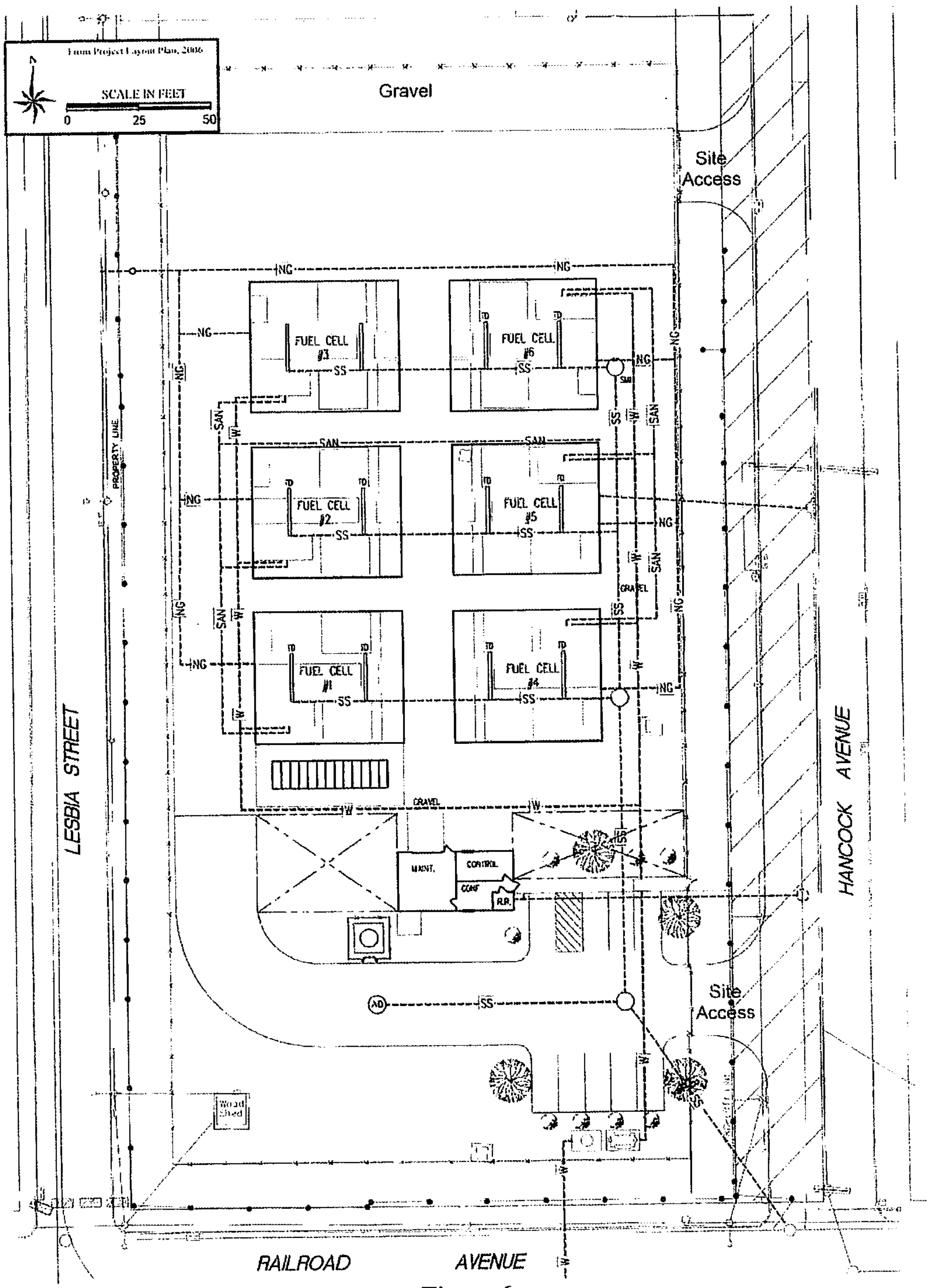


Figure 6:
Facility Layout Plan of the Bridgeport Fuel Cell Project

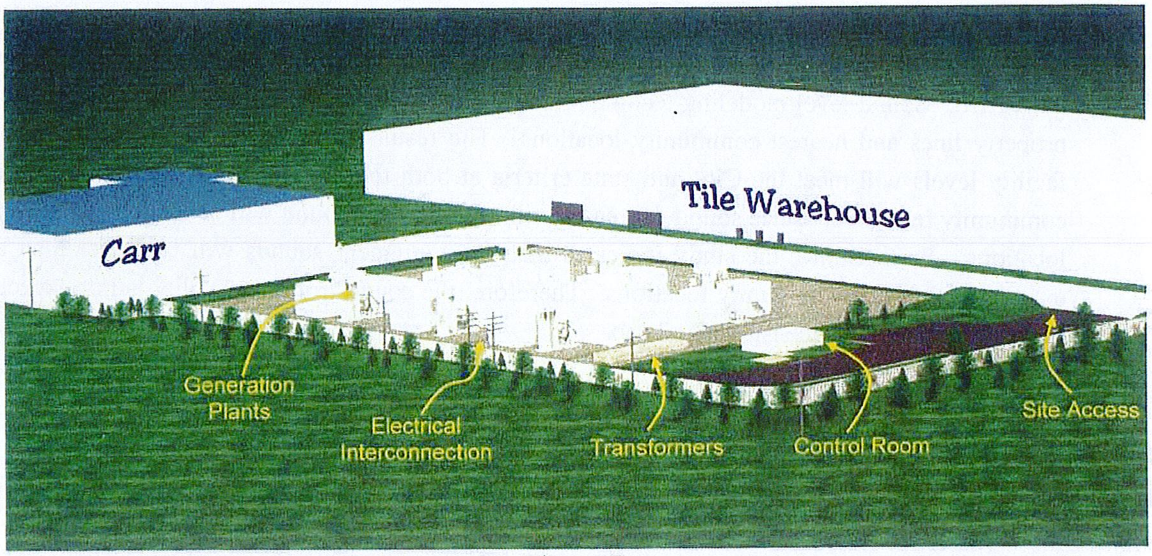


Figure 7:
Graphical Summary of the Six-Unit Facility Layout in Context with Nearby Buildings

The analysis is based on the contributions of individual sources based on propagation losses to the analyzed receptors. The distances used in the study were scaled from the equipment site plan for property line sources. This includes half of the abandoned roadways of Hancock and Lesbia on either side of the site. Distances to the community receptor locations were scaled from a United States Geological Survey ("USGS") aerial image. Table 3 demonstrates that the Project meets all applicable local and state noise standards at its property lines and at surrounding residential, commercial and industrial receptors.

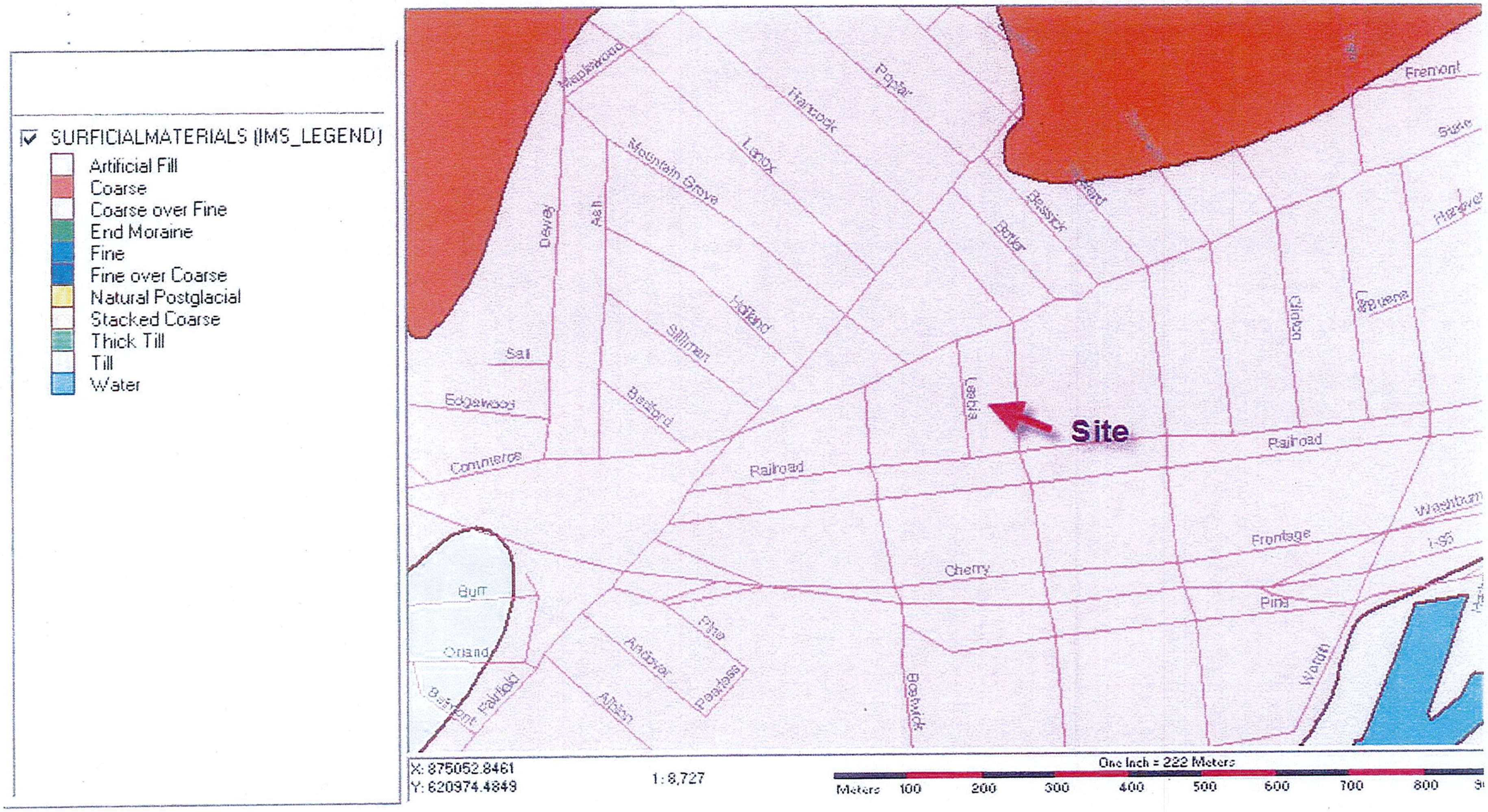
Table 3: Summary of Noise Modeling Results

Receptor	Distance (ft)	BFCP Sound (dBA)	Criterion (dBA)
Property Line East	70	60	70
Property Line North	90	58	70
Property Line West	70	60	70
Hubble Center	375	49	70
Community Center	438	48	51
Residence NE	406	44	51
Residences East	1050	38	51

Conclusions

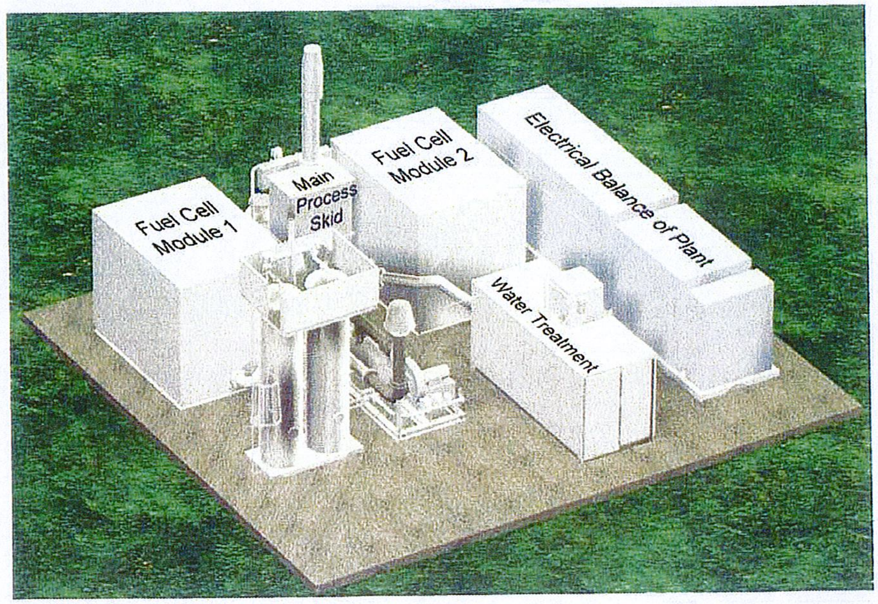
The Bridgeport Fuel Cell Park lacks the heavy mechanical equipment that is commonly associated with electrical generation. There will be several sources of modest sound such as blowers, pumps, condenser and fans. The size of the equipment and character of the sound will be more typical of commercial building mechanical equipment than of heavy industry.

The existing sound levels were established by direct measurements at the site and near the community receptors. The potential sources of sound at the facility have been identified and quantified. Sound level modeling techniques were employed to estimate the sound levels at the property lines and nearest community locations. The results of the modeling indicate that the facility levels will meet the City and state criteria at both the property lines and at the nearest community receptors. Since sound decreases with distance, the sound will be less at more distant locations. Furthermore, the study indicates that the equipment sounds will be lower than the existing ambient at community locations. Therefore, the sound from the facility is not expected to be noticeable at any sensitive land use.



Surficial geology in the vicinity of the proposed Project site. Source: CT GIS.

Visual Aesthetics Impact Assessment



Bridgeport Fuel Cell Park

Bridgeport, Connecticut

August 8, 2006

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fuel cell solutions for the future

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Modeling Specialties

Environmental Visual Aesthetics Assessment
Bridgeport Fuel Cell Park

The Bridgeport Fuel Cell Park (the "Project") is a commercial fuel cell generating facility proposed by Pure Power, LLC at a site on Lesbia Street in Bridgeport, CT. The analyses in this report evaluate the potential aesthetics impact of the proposed Project. The analysis is based on equipment configuration provided by the developer Fuel Cell Energy. While there are generally no quantitative regulatory criteria for visual impact evaluation, it is often a significant concern to the host community. This is especially true for the community between State Street and Railroad Avenue in Bridgeport. This area has been the target of a large-scale improvement from heavy industrial to up-to-date commercial character. Consistent with this trend, the Project will be low in height and will be installed such that the equipment is largely screened from general view. The site will include a 6-foot berm in conjunction with a 6-foot solid screen wall to visually screen the ground-level equipment. Further screening will be provided by plantings of 8 to 10 foot trees on and around the berm. Both evergreen trees and deciduous trees will be intermixed to provide a park-like setting in all seasons. As a result, the community views of the proposed facility will be in character with that of recently upgraded properties in the area, and an improvement over the traditional industrial uses in the area.

In contrast to other types of power generating facilities, the fuel cell equipment has a very low profile that can be effectively screened with site features. The highest vent on the unit is only 30 feet above ground level, making this facility at or below neighboring structures. The following analysis addresses the existing viewsheds in the community and provides simulations that show the equipment's relative structural dimensions in the current views. The plant model is not intended to represent an architectural design, nor would that be practical for a facility whose details will be refined in response to community and regulatory review. However, vendor data and technical discussions were used to develop a three-dimensional block model of the planned equipment. Rendered images of this model provide visual simulations of the proposed equipment configurations. The block model was developed using software that is commercially available from Autodesk, namely AutoCAD Architectural Desktop and 3D Viz.

The rendered model views were overlaid onto the community photos using common image processing techniques and software. The results of the assessment indicate that the equipment will only be visible at nearby locations. Most of the available views will only have the few tallest items of equipment visible against the white surfaces of the neighboring buildings. An elevated fleeting view of the site is available from passing traffic on Interstate 95 southbound. It is provided in this study, but is not considered a sensitive view.

Overview of Project and Site Vicinity

The Project site is located in Bridgeport in an area where old industrial sites are being upgraded to modern commercial structures. While there are still old industrial facilities near the site, they are not used as a reference for this study. The proposed equipment views are compared instead to the nearby commercial buildings that have already been updated, and to the more distant residential community. A tour of the area was conducted to identify community locations that might be sensitive to views of the facility. A brief overview of observed land uses is illustrated on an annotated aerial view of the project area in Figure 1.

Figure 1: Overview of the Analyzed Viewpoints and Community Land Use Character in the Site Area

Viewshed Analysis

In order to assess the potential visual impacts associated with the project, a viewshed analysis of the surrounding area was conducted. Because of the low equipment profile, only the locations that have an unobstructed view of the site are relevant for this study. Other locations will not be visually affected by the facility. Four community images were obtained at the community locations where the equipment might be visible. The only residential area that has an unobstructed view of the site will not be exposed to the equipment because it is shielded by the Carr Ice Cream building. A few other residences might have a partial view of the site.

Selection of Visual Receptors

The visual assessment started with a detailed review of the aerial photos obtained from the United States Geological Survey ("USGS"). This was followed by a drive-through survey of the neighboring communities out to a distance where the site is completely shielded from view. The potential viewpoint locations identified through these analyses were visited and evaluated. The viewpoint locations were described by their compass headings from the site. This survey process was intended to identify public locations in representative directions from the proposed facility, from which the structures of the proposed facility might be most visible. This visual analysis generally focused on viewsheds that represent community residential locations due to their sensitivity. However, there were no sensitive locations in southerly directions, so images were collected between the site and the elevated railroad structure. The four community viewpoints selected for detailed analysis are shown in Figure 1. The community receptors are described below. In addition, analyses were made from the I-95 freeway and from an oblique aerial view.

- Viewpoint SE: A large warehouse will shield the view of the equipment from locations east. The elevated railroad and industrial properties to the south will also prevent any nearby view from the south. The only viewing location from the southeast will be from the roadway or sidewalk along Railroad Avenue. The image was taken from Hancock at Railroad.

- Viewpoint SW: In the same way, the only view from the southwest will be from roadways. There is currently a view from the Hubble Center, but that is a secure facility and was unavailable for a field image. Future development of the site between Lesbia and Bostwick may reduce or eliminate their view. The image was taken near the site along Railroad Avenue.

- Viewpoint NW: There is currently a view across an empty lot from the park and community center between State Street and Fairfield Avenue. The image was taken from the sidewalk leading to the community center.

- Viewpoint NE: This is the residential location in the area with the best view of the site. Even so, the Carr building will shield the view of the equipment. The residential view of the site will be limited to the north side of the site fence. The image was taken from the sidewalk in front of the first residential driveway on Hancock Street.

Methodology of Analysis

Community references were established by the walk around survey. Based on the reference locations, a computerized model of the proposed Bridgeport Fuel Cell Park was constructed for developing the simulations. The 3-dimensional plant model was constructed using the Autodesk 3-D VIZ program. The equipment configuration was provided by the equipment vendor and developer. The receptor building locations were also simulated, so the model could be rendered from the same orientation as the field image.

The proposed facility will be a group of six DFC3000 fuel cell plants. Each plant will include all equipment necessary to generate electrical power for export. The fuel utilized by the facility will be natural gas. A skid is provided to process and purify the natural gas as it enters the plant. The fuel and oxygen from the atmosphere will be processed by the main processing skid to supply the two fuel cell modules. The fuel cell modules will produce DC electricity and some remaining anode gas. The anode gas will be combusted, recovering heat to be used in the fuel cell process. The output DC power will be processed by inverters to produce alternating current that is compatible with the power grid. A single fuel cell plant is characterized in Figure 2 showing equipment function and relative height.

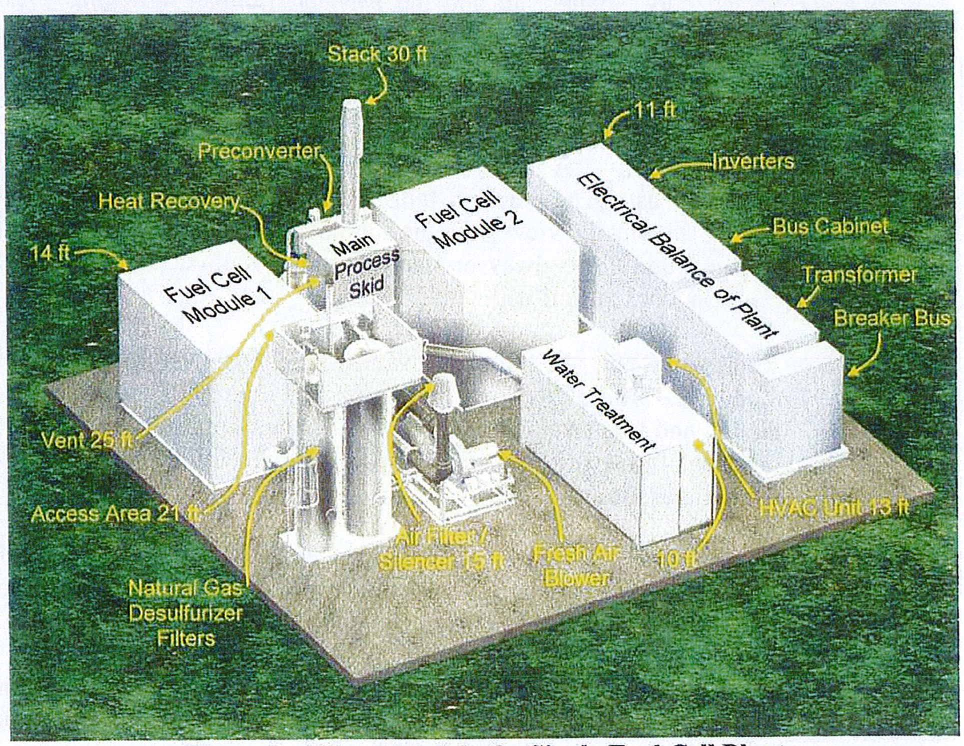


Figure 2: Visual Model of a Single Fuel Cell Plant

The entire facility will be made up of six individual generating units. There will be space around the block of units to provide necessary access to the equipment. In addition, there will be a small building that will include a control room, maintenance shop and conference room. The few other ancillary items of equipment on the site will include water and gas metering, and a bank of transformers that will process the power output for export to the grid. The entire site will be enclosed in a security fence.

Because of the community interest in upgrading the area from its past industrial setting, the site will also include substantial visual shielding. A six-foot berm will be installed along the west and south sides of the site, wrapping along the east side to meet the shielding provided by the neighboring tile warehouse building. Along the crest of the berm will be installed a six-foot visually solid stockade fence. The outside of the berm will also be softened visually by plantings of both evergreen and deciduous trees. The trees will be 8-10 feet at planting. The site model that includes the two neighboring offsite buildings is shown in Figure 3.

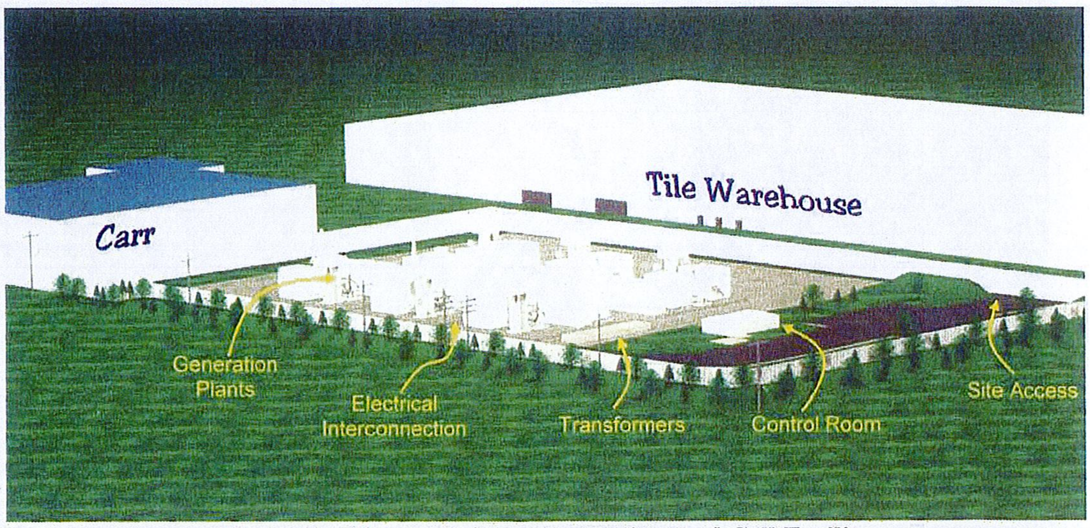


Figure 3: Visual Model of the Entire Fuel Cell Facility

Once the 3-D model was developed, the model could be rendered from the vantage points that represent each of the visual reference points. The proposed facility model was then overlaid on actual field images to simulate the developed project. The original digital images were modified to reflect the relative dimension and location of the proposed equipment. The simulated plant equipment was overlaid on the photos at the proper scale and orientation, such that the visual impact of the proposed stacks and structures may be illustrated. The photographs were used in the graphics to depict the results of the visual impact analysis. The simulations show various levels of detail depending on the relative distance from the plant equipment. An overview of the community area is provided by an aerial image with plant simulation in Figure 4. Also noted in the image are the community visual reference locations.

Figure 4: Aerial Overview of the Site Area showing Analyzed Viewsheds

Results of Visual Impact Analysis

The block model was overlaid onto field images from the four community locations and also the image from the freeway. These represent ground level viewing locations. They are shown in Figures 5 through 9. In each case, the original field image is provided in addition to the facility simulation. The figures represent the predicted visual effect that the facility will have at each of the viewing locations.

Lighting

The facility will be illuminated as required for worker safety and security during nighttime. No unnecessary lighting will be employed. Because of the low equipment profile, no special lighting will be required for visibility. Security lighting at the plant will be focused and hooded as appropriate to minimize the direct or indirect illumination of neighboring properties.

Conclusions

Based on the analysis, the proposed Bridgeport Fuel Cell Park will have little impact on the visual character of the community. The Project will be visible from certain locations within the area, but those viewpoints are in the context of existing buildings, utility poles and roadways. The equipment colors are based on white and gray tones that help them blend visually into the neighboring buildings. While this is the most likely selection, actual colors will be selected in cooperation with the review agencies. The results of the study demonstrate that the facility will provide a modern foliated look that is consistent with other properties in the area that have been upgraded to revitalize the commercial area.

Figure 5a: Existing View from the Southeast corner of the Site

Figure 5b: Simulated View from the Southeast corner of the Site

Figure 6a: Existing View from the Southwest corner of the Site

Figure 6b: Simulated View from the Southwest corner of the Site

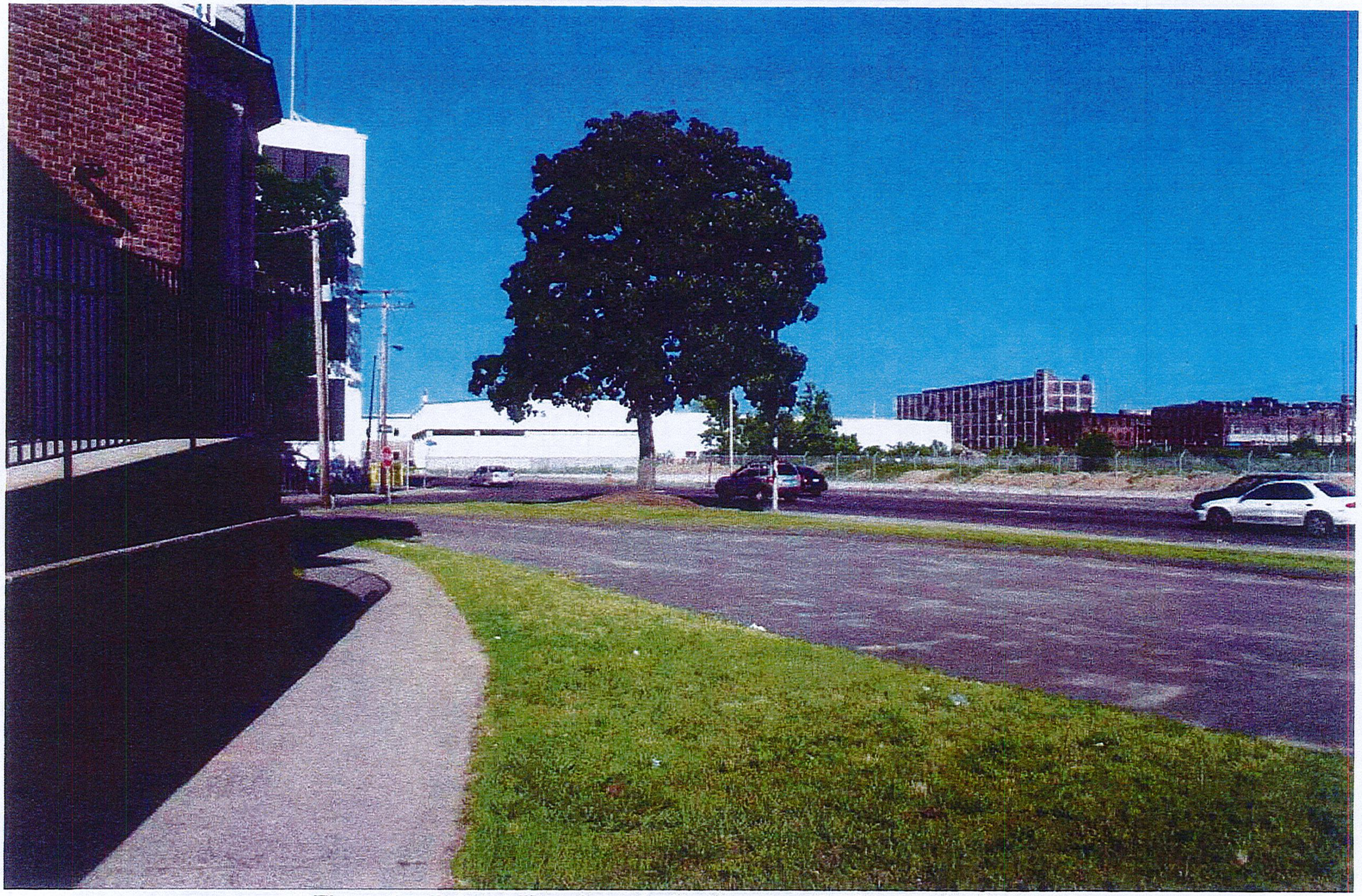


Figure 7a: Existing View from the Northwest, at the Community Center

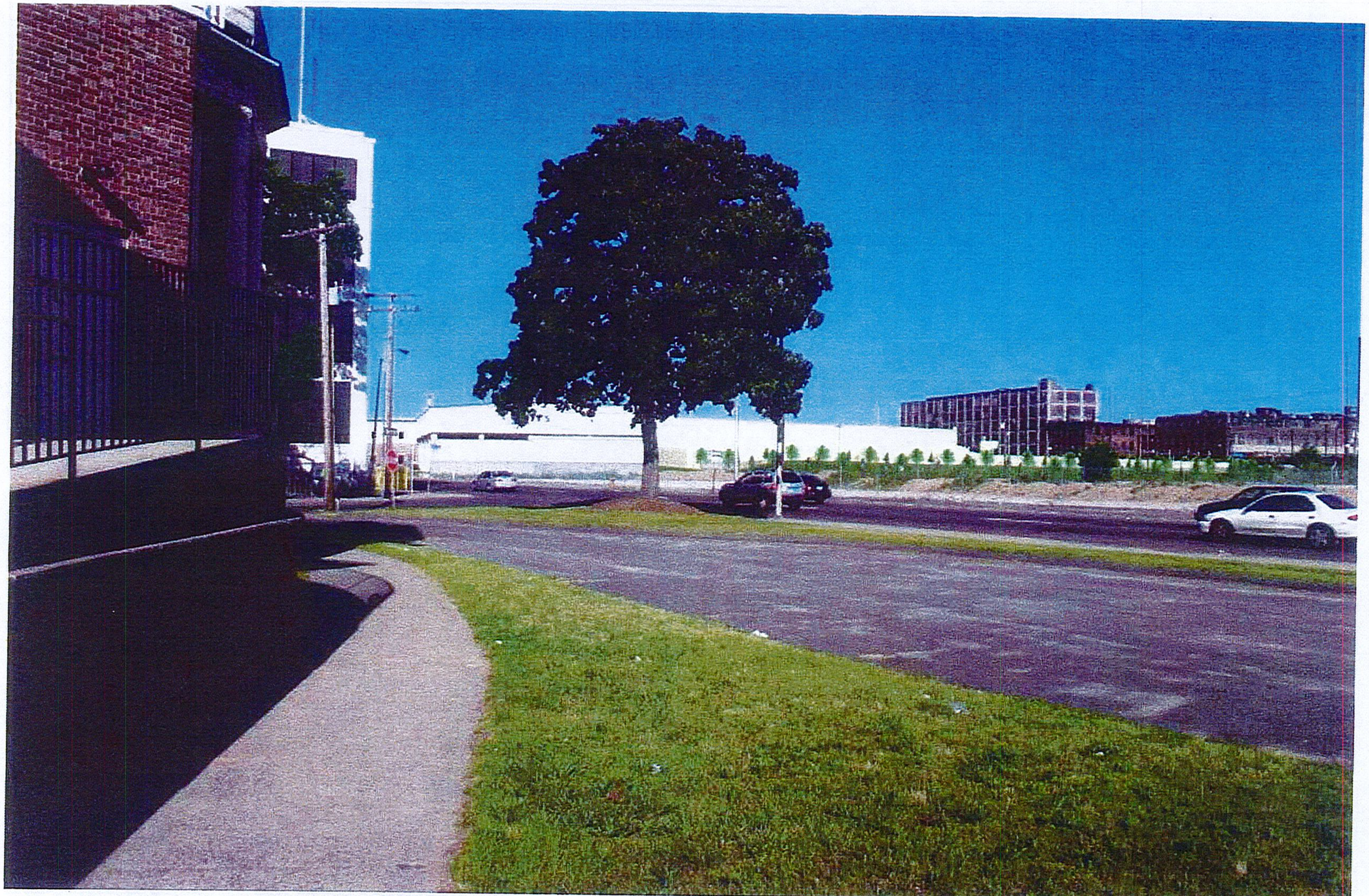


Figure 7b: Simulated View from the Northwest, at the Community Center

Figure 8a: Existing View from the Northeast, Residential Location

Figure 8b: Simulated View from the Northeast, Residential Location

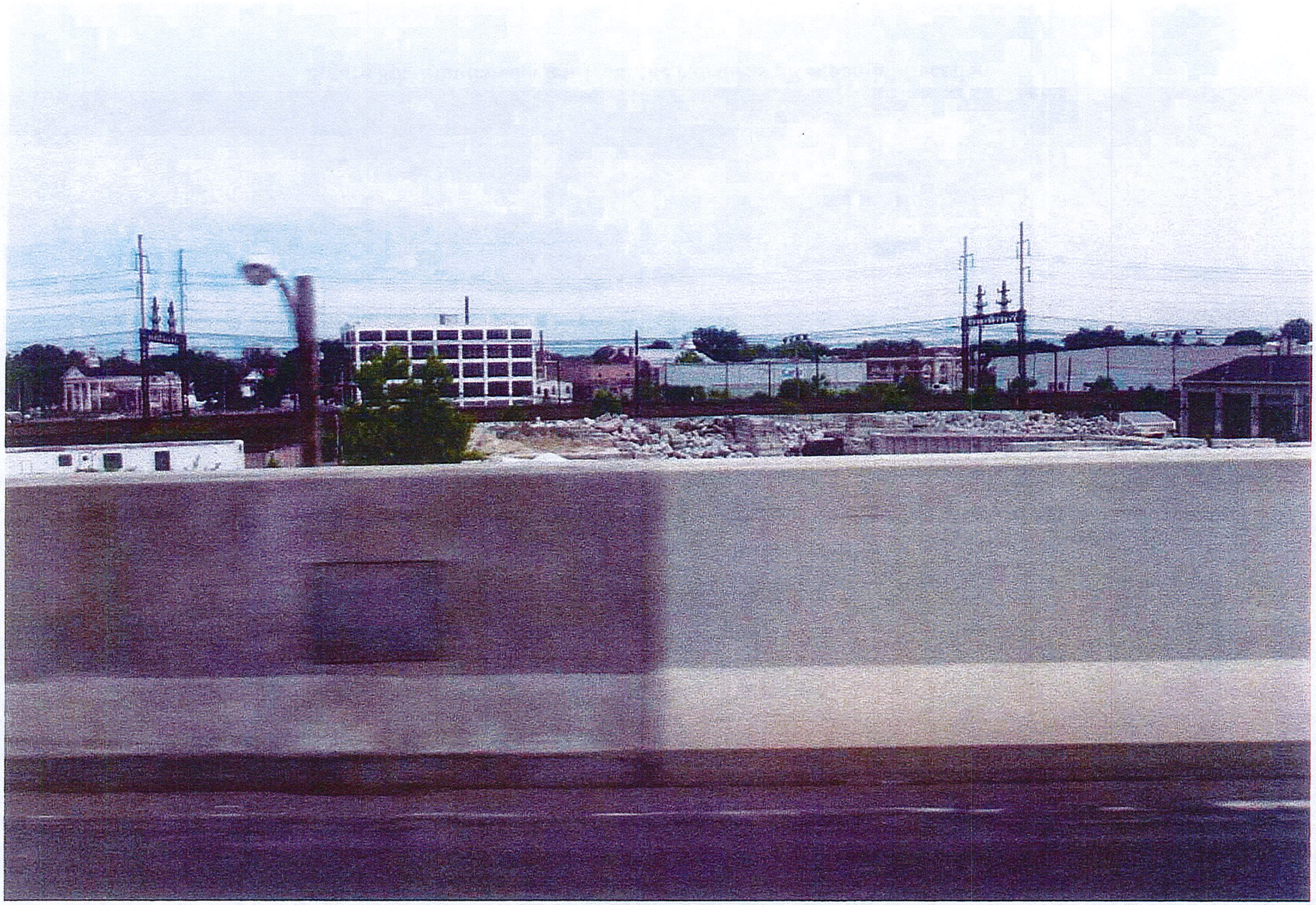


Figure 9a: Existing View from the Southbound lane of Interstate 95

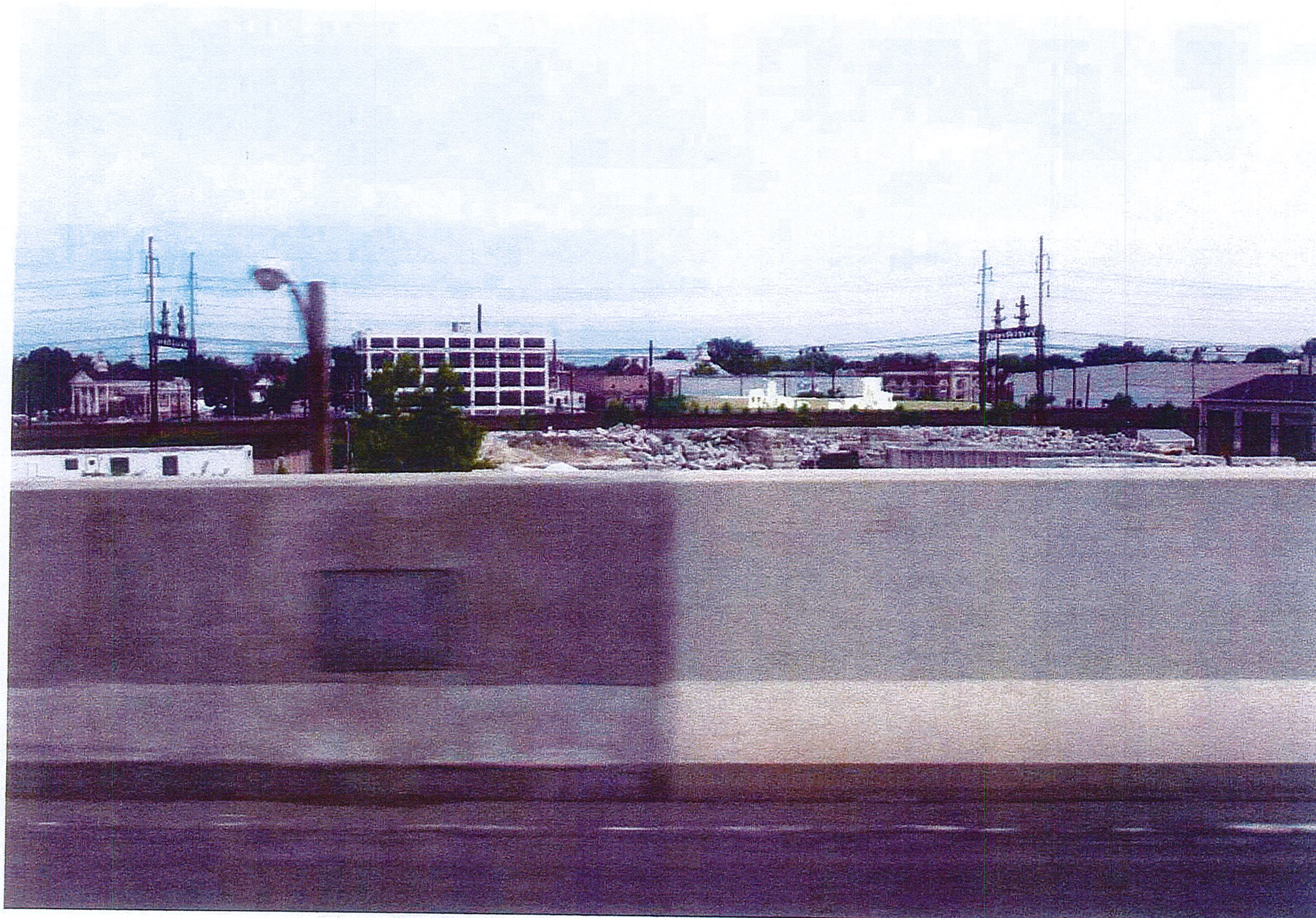
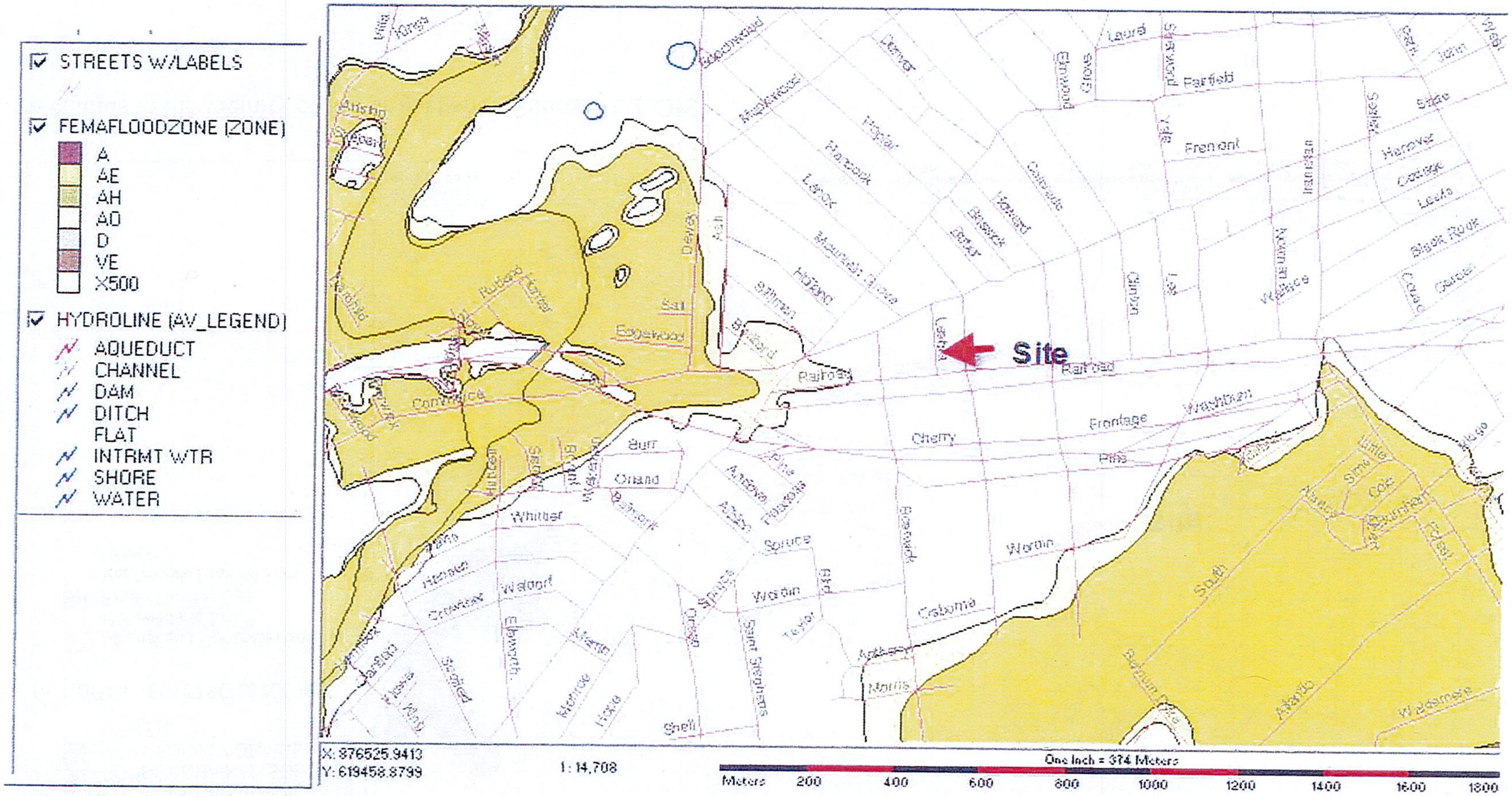
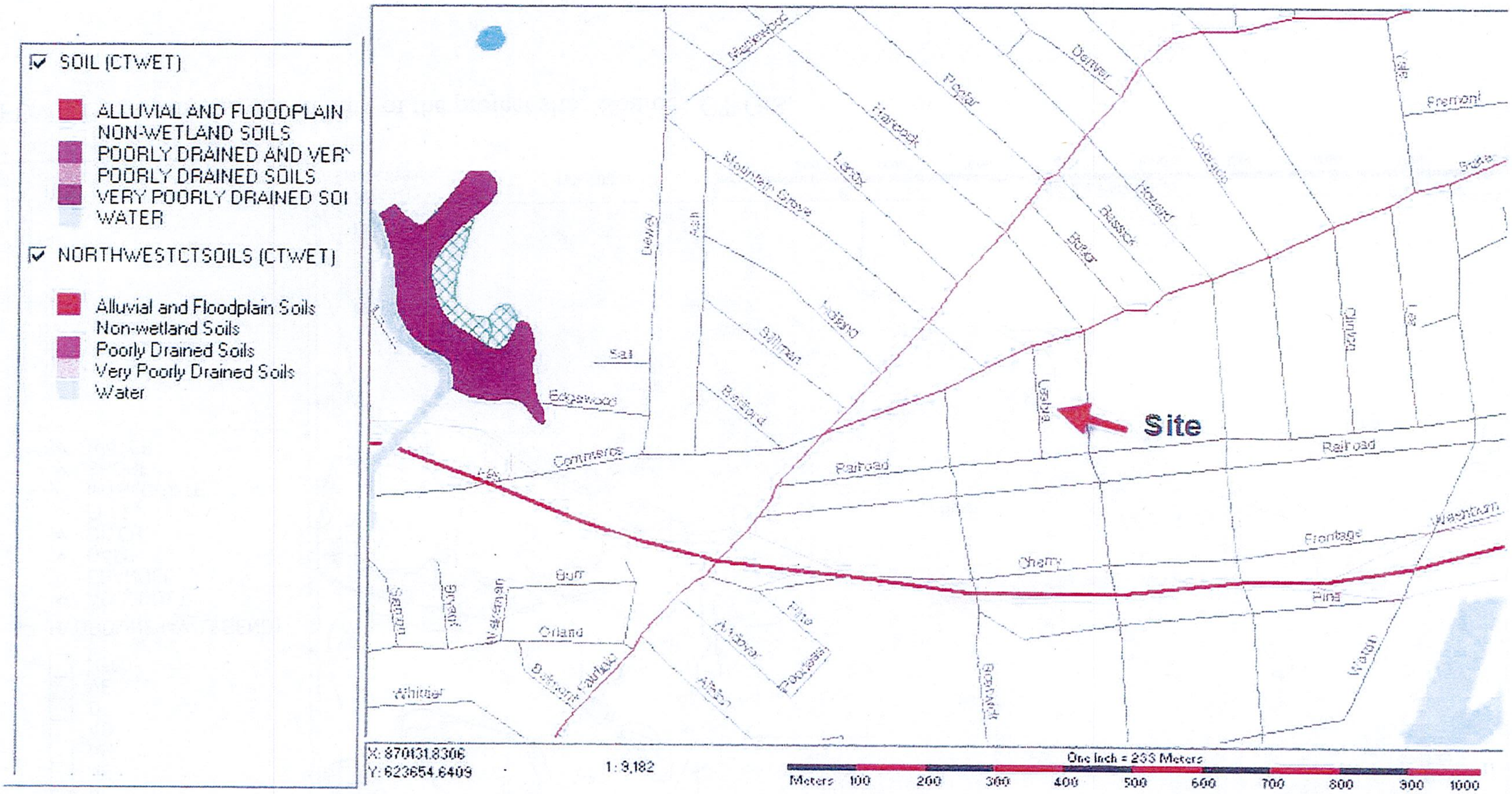


Figure 9a: Existing View from the Southbound lane of Interstate 95



FEMA flood zones in the vicinity of the project site. Source: CT GIS.



Wetlands in the vicinity of the project site. Source: CT GIS.

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

Natural Diversity Data Base

June 1, 2006

Mr. Dan DiCristofaro
Blue Sky Environmental LLC
1040 Great Plain Avenue, 2nd Floor
Needham, MA 02492

Re: Installation of fuel cell, Lesbia Street
in Bridgeport, CT

Dear Mr. DiCristofaro

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for an installation of a fuel cell on Lesbia Street in Bridgeport, there are no known extant populations of Federal or State Endangered, Threatened or Special Concern Species that occur at the site in question.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Natural Resources Center's Geological and Natural History Survey and cooperating units of DEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at 424-3592. Thank you for consulting the Natural Diversity Data Base. Also be advised that this is a preliminary review and not a final determination. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEP for the proposed site.

Sincerely,

D.M. McKay

Dawn M. McKay
Biologist/Environmental Analyst

DMM/blm

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Connecticut Commission on Culture & Tourism

Historic Preservation & Museum Division

59 South Prospect Street
Hartford, Connecticut
06106

[illegible]
[illegible]

June 23, 2005

Mr. Donald C. DiCristofaro
Blue Sky Environmental LLC
1000 Great Plain Avenue, 2nd Floor
Needham, MA 02492

Subject: Pure Power LLC Fuel Cell Park
Lesbia Street
Bridgeport, CT

Dear Mr. DiCristofaro:

The State Historic Preservation Office has reviewed the above-named project. This office expects that the proposed undertaking will have no effect on historic, architectural, or archaeological resources listed on or eligible for the National Register of Historic Places.

This office appreciates the opportunity to have reviewed and commented upon the proposed undertaking.

This comment is provided in accordance with the National Historic Preservation Act and the Connecticut Environmental Policy Act.

For further information please contact Dr. David A. Poirier, Staff Archaeologist.

Sincerely,

J. Paul Loether
Division Director and Deputy
State Historic Preservation Officer

PETITION NO.

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

PETITION OF BRIDGEPORT FUEL CELL PARK, LLC FOR A DECLARATORY RULING	August 18, 2006

PROOF OF SERVICE

Commonwealth of Massachusetts)
) SS.:
County of Suffolk)

John A. DeTore, being duly sworn, deposes and says that on the 18th day of August, 2006, a true and complete copy (or copies as noted) of Bridgeport Fuel Cell Park, LLC's Petition for a Declaratory Ruling and attachments related thereto was served upon each party or person on the attached list by overnight mail.

S. Derek Phelps, Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051
(Original & 20 copies)

John Michael Fabrizi, Mayor
City Hall Annex
999 Broad Street
Bridgeport, CT 06604

Fleeta C. Hudson
45 Lyon Terrace, Room 204
Bridgeport, CT 06604

By:________________________

John A. DeTore, Esq.
Rubin and Rudman LLP
50 Rowes Wharf
Boston, Massachusetts 02110
Telephone: 617-330-7000
Facsimile: 617-330-7550

Subscribed and sworn on this 18th day
of August, 2006.

Sandra J. Wollenhaupt

Sandra J. Wollenhaupt
Notary Public

My Commission Expires:___________

SANDRA J. WOLLENHAUPT, Notary Public
My Commission Expires: February 20, 2009